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ART. I.—THE CONSERVATIVE VICTORIES.

BY WILLIAM M. BURWELL.

The military conquest carried with it complete political subjugation. It is shown, by an excellent article bequeathed by the late Judge Oldham, of Texas, and published in the last number of the REVIEW, that the civil war was fought for the right to regulate our own internal affairs, and that the people of the South resisted with arms, to the last extremity, the total overthrow of their social system. Events which have succeeded show that we cannot resist at the ballot box that which was overthrown on the field. The Radical Republican party have triumphed, ruthlessly and recklessly, in trampling under foot every domestic right which can be valued by a people—they have deprived us of the right of suffrage and of representation, and cast them upon our former slaves. Our law making and taxing powers are now in the hands of men without knowledge, without property, and without principle. Men have come from other States, and without pretending to any qualification of citizenship, have immediately assumed the most important State offices. Many patriots among us were of opinion that we might regain by party combinations what we had lost by the sword. We have patiently and earnestly aided them in their efforts to recover an acknowledgement of our rights through the agency of a party or

ganization at the North. The very association with us seems to have exposed our friends abroad to the imputation of repudiation and rebellion. These terms have proven too heavy for them to carry, notwithstanding they claimed to have defeated the "rebellion," and disclaimed any responsibility for us or for our acts. Our misfortunes crushed our friends as well as ourselves. Our enemies have thus received a renewed lease of power, with a confirmed accusation against ourselves and our friends. Under these circumstances, what is the duty of Southern men? We have made two fights—a military fight and a political fight. We have been conquered by the soldiers, who have generously offered us the honorable terms of Appomattox. We have been subjugated by the camp followers, who have inflicted upon us the utmost indignities. They would perpetuate our disqualification—they would create the negro our master, by constitutional provision. Are we, who have thus been conquered in these two wars, under honorable obligation to renew the combat? Is it any more our duty to resist with the ballot than with the bayonet? We say, as one who has fought in both battles—except that we could not vote—that there must be an end of this unequal, this hopeless, this ruinous contest. We must do as the brave men in Virginia and Tennessee have done—accept the situation, with its fortifications and position as it stands. As Lee, within the lines of Richmond and Petersburg, defended them till broken by a superior force, as he fell back fighting, without rations or cartridges, as he met superior numbers, with abundant supplies, as they gathered around him and demonstrated to the world that he could do no more than sacrifice brave men to inevitable destruction, like Lee, the South will stand exonerated before the world of any want of courage or fidelity. Like Lee, the South will bow to a force she could not resist. She will, like him, disarm misfortune by fortitude.

We have, in truth, no more moral right to sacrifice the peace and welfare of the Southern people by persevering in this desperate combat than Lee would have had to order a charge of his unarmed and starving soldiers against the serried ranks and concentrated artillery of Grant.

The course pursued by Virginia and Tennessee, and now proposed by the address to the people of Mississippi, is, in our opinion,

eminently wise. We will go farther: it is the duty of the entire South to vindicate the course of those States which have thus acted. Virginia cannot be charged with any dereliction of honor. Her battle fields and her cemeteries attest her fidelity to principles. Her courts of justice the prey of adventurers, her halls of legislation defiled by ignorance and rapacity, her social and industrial interests paralyzed by Radical rule, would render it shameful in any one who had suffered less to censure the propriety of her conduct.

We believe historically that this *was* a compact of sovereigns. We know, from visible facts that it is no longer a government of States. To set up State rights again two things will be necessary: 1. The conviction of the States, or a majority of their people, that a compact is best for their interests. 2. The numbers and wealth necessary to execute this conviction and to impress it upon the Constitution by distinct amendment—by language more distinct and indisputable than those who made the Constitution of 1789 *dared* to employ. There were men, no doubt, who honestly believed that the sovereignty of the colonies was in King George. Many, no doubt, died in that conviction. There were men who believed that succession to the British throne was in the Stuarts, as there are now men in France who believe the Bourbon the legitimate dynasty. The belief of the minority in this Republic has no effect upon its administration. To reinstate our construction of the compact will render it necessary to interpolate this construction upon the Constitution. This will render it indispensable that the States entertaining this opinion should have a numerical vote and political influence strong enough to carry that point. State rights were lost for the want of State strength. State rights were lost because a majority of the physical force of the Union refused to recognize them. State rights cannot be reinstated until a majority of the same physical force shall be convinced of their propriety.

Let us, then, turn our attention to the increased value of our productions, the mixture of our industries, the attraction of numbers from other countries, and the arrest of emigration from our own. These measures give us a positive and practical strength. As we obliterate the lines of difference with our fellow-citizens elsewhere, we shall afford means for the cordial alliance which adds wealth and numbers to our exhausted country. Let us renounce no

right and recant no assertions. Let us eliminate all effete issues. Let us cultivate all questions which tend to stimulate a patriotic conflict among our people as to which can do the most for the good of the South. Suppose Brownlow and Senter were candidates. Would a wise people prefer a fanatical persecutor through all time rather than accept a man whose political opinion of the Union differed from their own, but who was a moderate and just ruler? There can be no doubt as to the duty of the Southern people in this respect, and we cannot express ourselves more distinctly than by exhorting all to follow the example of Virginia, and compromise on the most conservative ticket that may be presented to them.

ART. II.—TRUE CAUSE AND ISSUES OF THE CIVIL WAR,

WITH A NARRATIVE OF THE LAST DAYS OF THE CONFEDERATE GOVERNMENT.

BY HON. W. S. OLDHAM, SENATOR FROM TEXAS.

The laws of Congress, and treaties entered into by the Federal Government are the supreme laws of the land only when enacted, or entered into, in pursuance of the Constitution. It is equally true that the constitution of a State, and the laws passed in pursuance thereof, when not in conflict with the Constitution of the United States, are the supreme laws of such State. It is not so declared by the Constitution of the United States, for such a declaration would have been an act of supererogation—the State Governments do not derive their power from the Constitution of the United States, but from the same source from which that instrument was derived.

According to the theory of the duplex system of government of the United States, there could be no conflict between the Federal Constitution and the laws and treaties made in pursuance thereof, on the one hand, and the constitution and laws of a State made in pursuance thereof, on the other, as has been shown. The two constitutions divided and distributed all the legitimate powers of government between two distinct departments or agencies—what was delegated to the Federal Government was withheld from that of the State, and each State bound itself to its co-States, and was not bound by them, that within its limits "the Constitution of the United States, and all laws and treaties made in pursuance thereof, shall be

the supreme law of the land, anything in the laws and constitution of a State to the contrary notwithstanding." Therefore, in case of such conflict, the State has laid down the rule of construction for the determination of the conflict. As already stated, and shown from historical facts, not a line of the Constitution of the United States, nor the instrument as a whole, has one particle of vital force in any State except in virtue of its ratification by such State in its sovereign capacity, and self imposing the obligations specified in the instrument.

As colonies of Great Britain, the people of each colony had become accustomed and attached to the local or sectional system of government over their home or domestic affairs, while they had, likewise, become accustomed to the administration of their external affairs by the parent government. At the time of the formation of the Federal Constitution, they had substituted the Colonial Government by their State Governments. In addition to the fact that the people were accustomed to the distribution of the powers of government, and attached to the local agency for the administration of home and domestic affairs, strong philosophical and political reasons existed for withholding from the Federal Government the powers of internal government, and retaining them in the local governments of the States.

The territory of the States combined was extensive, the soil and climate diversified, with diverse sectional pursuits, interests, feelings and prejudices. With the extension of territory, increase of population, the development of new pursuits, employments and interests, those diversities would necessarily become multiplied. The interests and pursuits of the various sections would require the passage of laws to promote and foster them. In many cases it would be difficult, if not impossible, to frame a law to promote and foster a particular sectional interest or pursuit, which would not operate prejudicially to the interests of other sections. The members of Congress, coming from every part of an extensive territory, could not be well advised in regard to all the local and sectional interests of the country, and in attending to the interests of their respective localities would be liable to disregard adverse interests elsewhere. A knowledge of such adverse interests would not likely restrain their action, for want of sympathy with those whose

interests would be prejudiced, and a desire to promote those of their immediate section and local constituents. Mutual interests would beget sectional combinations for their advancement and promotion, and those of the stronger sections would paralyze, if not crush, those of the weaker. From such collisions of sectional interests, sectional antagonisms would take place amongst the people, resulting finally in civil war and the destruction of the government.

On the other hand, the territory of each State being comparatively limited in extent, with but little diversity of soil and climate, with a homogeneous population, the interests and pursuits of the people could be fostered and promoted by State laws, without prejudice to those of the people of other States. The members of the legislatures of the States would, necessarily, be better advised in regard to the local interests of the States than members of Congress could possibly be, and better qualified to adopt appropriate legislative measures for their promotion.

To have conferred the powers of local and internal government upon the Federal Government would have subjected the weaker sections to the power and domination of the stronger ones, to be ruled and governed as interest, feeling, or passion might dictate. If history had not proved it before, that of the United States for the last fifty years has established the fact that constitutional provisions are but ropes of sand when they come in conflict with the interests, education, sentiments, and passions of a people. It may be safely asserted, without the fear of successful contradiction, that a representative republican government, with all the powers of government centralized and consolidated, over an immense territory, containing a population having sectional interests, and engaged in various and different pursuits and occupations, with different local and sectional institutions, is incompatible with civil liberty, and contains within itself the elements of its own destruction.

The men who framed the Constitution of the United States were wise and practical; they possessed a profound knowledge of human nature and motives of human action. They were more deeply impressed by the foregoing truths than their posterity. Therefore, while they hedged in the rights and liberties of the people with the guarantees and barriers of the Constitution, they sought to preserve the sovereignty of the States as the citadel from which to resist the

assaults of interest, passion, prejudice and hate, and into which the States might retire if resistance should fail, and those barriers should be broken down.

The assertion, maintainance and vindication of the sovereignty of the States was regarded as the great safeguard of civil liberty. The right of the people of each State, through their State Governments, to administer all the powers of local and domestic government, could not be denied, without also denying the sovereignty of the States. A denial of the sovereignty of the States was an overthrow of all the constitutional safeguards of liberty and the subjection of the people to the government of an unrestrained majority, influenced by the worst and basest passions of human nature. In such case there would be no alternative but submission, or resistance by revolution against the most grinding and oppressive tyranny. In such a dilemma the patriot fathers who framed the Constitution never thought of placing their posterity.

Did the States, by the adoption of the Federal Constitution, divest themselves of their sovereignty, which they clearly possessed at the time, and to the exercise of which the Constitution itself owed its existence? Did the sovereignty of the States, in virtue of the Constitution, pass from the States and become invested in the Federal Government? What was the Constitution? It was an agreement, a compact, a treaty, entered into by and between sovereign States, creating a common agent, and delegating to that agent certain specified powers, to be exercised in common for the good of all. As usual in the case of treaties, its terms were agreed upon and the instrument reduced to form by delegates, or diplomatic agents, deriving authority from, and representing their respective sovereigns. As treaties usually are, it was referred to the respective States for ratification or rejection, and like all treaties, it was binding upon no State, only in virtue of its own ratification. The Constitution, and every obligation contained in it, were self imposed by the voluntary act and will of each State, and the same was done in the exercise of the most exalted powers that appertain to sovereignty.

In order to a clear understanding of any subject, a definition of the terms employed is essentially necessary. Upon the subject under consideration, much confusion and contradiction of ideas have grown out of the loose and indefinite use of the terms State, sovereignty, sovereign, allegiance, etc., etc.

The term *State*, geographically, signifies the territory owned, held and occupied by the people of a State, as the State of Virginia, signifying the territory inhabited by the people of that State. A State in the primary and political sense, means a political society or community composed of individuals, possessing within themselves all the powers of political sovereignty. It is essential to the existence of a State that it possess within itself those powers. It is not necessary that they exist in, or be exercised by any particular portion or numbers of the society. Whenever a State loses its sovereignty, it ceases to be a State, and when that power is wrested from it, and becomes invested in foreign hands, the society becomes degraded from the dignity of a State and is reduced to a province ; but as long as it remains a State, it continues in the possession of sovereign power.

Sovereignty, in its legitimate sense, means the inherent power possessed by a State, political society, or people, to establish and organize such government as it may choose, and to administer the same over its own people, without the right of interference by any other people or State whatsoever ; to alter or abolish such government, and to establish a new government in its stead, and to do all things necessary to secure and preserve the existence of the State, and the advancement of the prosperity and happiness of the people as individuals.

A sovereign, in common parlance, means a person clothed with the exercise of sovereign power, whether original or delegated. That, however, is not the proper and true political definition of the word. Under the feudal system, the paramount lord was the real sovereign, and was in the possession of all the powers of sovereignty, which he could exercise at his own will and pleasure. And in England, as long as the doctrine of the "divine right" of kings prevailed, the crown was really the sovereign power of the State. But when that doctrine was exploded, the king was still called the sovereign, without possessing the powers of sovereignty, except as the agent or representative of the nation. A sovereign, in its true and proper sense, is one who possesses and exercises primary sovereign powers in his own right, and not as an agent, exercising delegated powers. In those countries where the doctrine of the divine right of kings exists, and in absolute despotisms, the monarch is the real

sovereign. In those countries, and under such governments, the nation has not constituted an agent and delegated to him powers in trust, but have parted with the absolute title.

Allegiance is the fidelity and service due from the subject to his sovereign, from the vassal to his lord.

That the States were sovereignties before the adoption of the Federal Constitution, that they acted in that character in the formation and ratification of that instrument, I flatter myself I have shown to be historical facts ; that they claimed to be States, subsequently, and were recognized by each other as States, is equally true ; that they are declared in the Constitution itself to be States, is a fact, and, until 1860, they continued in the undenied and uninterrupted exercise of all the powers of internal government, both in the establishing of government and administering the same.

It has often been asserted that, by the adoption of the Constitution, the States parted with their sovereignty, and that it was thereby vested in the Federal Government. There is not a fact to warrant the position. The States, by the Constitution, did not grant and convey a title, but simply delegated a power. The delegation of power implies the existence of a principal and an agent, the title remaining in the principal, with authority in the agent to exercise the power.

The Constitution did not purport even to delegate all the powers of sovereignty. The most important was reserved expressly. It conferred upon the Federal Government authority to administer the external powers of government. The power to administer the domestic governments of the States was withheld, and the still higher and more important power, the power " to establish government, and to change, alter or abolish it, and to institute new governments," was also withheld. To have constituted the Federal Government a sovereignty, all the attributes appertaining to that character should have been granted by the States by a conveyance transferring the absolute title, and not by an instrument, in the nature of a letter of attorney, to execute a very small part of the sovereign powers of the States.

It has also been said that the original sovereign powers of the States were divided between the Federal and State governments, and constituted a divided sovereignty. The powers of the State

Government, like those of the Federal, were both delegated and limited, and of no other character, both of which are inconsistent with the existence of sovereign power. Their authority extended to the administration of the domestic governments of their respective States.

I have defined sovereignty to be the inherent power to establish, organize, sustain, and administer government. This power always rests primarily in the State—the people constituting the political community. It may be exercised by the whole society, by a few individuals, or a single person. The society may part with their title by tacit or express consent, or the title may be wrested from them by despotism; but in all such cases it may be resumed by them whenever they have the will or the power to repossess themselves of it. This has become a settled principle of politics in the monarchies of Europe; will it be disputed by republicans in America? It is there a recognized political principle that the people of every nation have the inherent right to establish whatever form of government they may choose, and select their own rulers. The Empire of France and the Emperor Napoleon are practical, living examples of the exercise of that power, and they stand before the world as the champions of the doctrine.

It was in this sense that the States were sovereign, and in this sense the Federal Government never became so.

The first test of the existence of sovereignty is whether the party acting acts in the exercise of primary or delegated authority; if in virtue of the first he is sovereign; if the second he is but an agent of the sovereign. It was in virtue of primary authority that the States established the Government of the United States, and in virtue of the second that that government exercised the powers conferred upon it by the States.

The second test of sovereignty is that the party possess within himself all the powers of sovereignty; to establish, to organize, to sustain government, and to administer all its functions, both external and internal. It was in this sense that the States established both the Federal and State governments, organized and put them in operation, and sustained them, and as political agents and instruments, administered all the powers of government, both external and internal, down to the year 1861.

According to neither of these tests were either the Federal or State governments sovereign; the authority and power of both were both delegated and limited; those of the first were limited to the exercise of the external powers of government belonging to all the States; those of the second were limited to the domestic powers of government in each State.

It is as absurd to confound sovereignty with the exercise of sovereign power, as it is to contend that the attorney who conveys the fee, under a power of attorney, is the real fee simple owner of the estate. In both instances the parties are but agents, acting under the authority of their principals, in whom are vested the superior title. The powers are held in trust, to be executed for the benefit of the real owners; and, in legal parlance, "are not even powers coupled with an interest."

Then, where was that sovereign power which the States wrested from the crown of Great Britain, which was proclaimed and asserted by them in the Declaration of Independence, acknowledged by Great Britain in the treaty of 1783, which was exercised in establishing governments, both State and Federal, in changing and altering the State governments, and in administering all the powers and functions of government, through the agencies or departments of government, as established? It existed somewhere, for the existence of sovereignty, in the broadest meaning of the term, is the first element of a State or nation, and without it a State or nation ceases to exist as such. The question is answered by the amendment to the Constitution: "All powers not delegated by the Constitution, and which are not necessary and proper to carry into effect the powers granted, are reserved to the States respectively, or to the people." The word "people" is but tautology, for the people and the State are synonymous. By this amendment to the Constitution the sovereignty of the States was as expressly reserved as it was done in the articles of confederation. I have shown the main and essential powers of sovereignty were not delegated to the Federal Government, and I conceive that no man of common sense and ordinary information and knowledge of the nature of government, will insist that they were "necessary and proper" to the exercise of the delegated powers. This amendment to the Constitution declares that the

powers of sovereignty remained with the States ; there it remained *propria vigore*, and was exercised whenever necessity demanded, until 1865, when it was wrested from them by the sword of the usurper, when the Southern States were subjugated, and degraded to conquered provinces, and their sovereignty was buried with the mangled carcasses of martyred patriots, who died in the defence of liberty.

The States being sovereignties, as I have shown them to have been, in the possession of all the attributes appertaining to that character, having the power to establish and administer government, they likewise possessed the correlative power "to change, alter or abolish such governments," and it was "not only their right, but their duty to do so," whenever that government threatened the rights and safety of the people, "and to establish a new government, laying its foundation upon such principles, and organizing its powers in such form, as to them should seem best calculated to secure their safety and happiness."

Every sovereignty is the guardian of the liberties of its people, and is the proper and sole judge of the measures of precaution or of defence to be adopted whenever they are threatened or assailed, and in the adoption of such measures, may select any which sovereignty is authorized to choose and is able to exercise.

The Southern States believed that their sovereignty was threatened with overthrow, that a complete revolution of the Government would occur, destructive of our constitutional republican system, and alike destructive of the liberties of the people, by the election of the Republican candidates in 1860, if the principles of the party electing them should be carried into execution. They believed that the agency created and clothed with the power, and charged with the duty of preserving the States, and defending them in the enjoyment of their sovereign powers, was about to pass into the hands of those who would use the means placed in their hands to destroy the States ; they believed that the agency upon which they had conferred the administration of their external, or foreign powers of government, was about to pass into the hands of those who intended to grasp the powers of internal government also, and centralize and consolidate both in the same hands, and that these threatened acts, if carried into execution, would result in the destruction of the Con-

stitution, of constitutional government, and the establishment of despotism. Whether their fears were well founded, will constitute a subject for future consideration. As a measure of safety, they resolved to secede from the Union ; that is, to abolish that department of their government to which they had delegated the administration of their external affairs, and establish a new agency, department, or government, and vest those powers in it.

If those States were sovereign, they had the right, as such, to secede, with or without cause, and in doing so the act would not involve a question of sovereign power, but one of good faith. While there is, and can be, no limitation upon the powers of sovereignty, still sovereigns are bound by the principles of good faith. They may, at will, annul the most solemn treaties and compacts, and such act never involves a question of power, but of good faith. The Constitution was nothing more than a treaty or compact between sovereign States ; one of the highest and most solemn character, entered into in precisely the same manner, and under the formalities in and under which treaties are usually made between sovereign powers. All the parties to it were bound by the principles of good faith to execute its terms and stipulations and to comply with its conditions. No State could withdraw from the Union, without good cause, without a violation of its plighted faith, and to remain in the Union and refuse to comply with the obligations of the Constitution would be equally a violation of good faith.

The Union between the States, and the rights and obligations of the parties was analogous to a partnership between individuals for a term of years, or for an indefinite period of time, the partners stipulating not to withdraw from the concern. In that case, notwithstanding the stipulations to the contrary, a partner may withdraw without any cause whatever being afforded by his copartners, and a court of equity will not enforce a specific performance of the contract against him and compel him to continue a member of the partnership firm. By such withdrawal he only subjects himself to a judgment in damages for his breach of contract. But if his copartners should be acting in bad faith towards him, and he should withdraw, both courts of law and equity will vindicate his act and refuse to render a judgment against him, either for damages or for a specific performance. States, like individuals, are subject to the

principles of morality and justice. A State, no more than an individual, can disregard the principles of morality and good faith in the observance of its treaty stipulations, and hold the other party bound.

If the fears of the Southern States were well founded, it was their duty to secede, and in doing so gave no just cause of complaint to the other States. That duty was declared in the Declaration of Independence, and enforced by the example of our fathers, when they were not sovereign States, but dependent colonies, not by the accession of a sovereign, but by the revolt of the subject against the government to whom allegiance was due.

If the States were sovereign, what was the duty of the individual citizen, when they seceded? I have defined allegiance to be the fidelity and service due from the vassal to his lord, from the subject to his sovereign.

The political society constituting each State possessed the sovereign power of the same, and each individual citizen was bound by his allegiance to serve and obey it. Allegiance was never due to either the State or Federal governments, it was not due to the agent, but to the principal—not to the representatives of, but to sovereignty itself. The citizen owed obedience to the laws of Congress, when passed in pursuance of the Constitution, but no more. When they were unconstitutional, he was not bound to obey them. He owed that obedience because he was commanded to yield it by the sovereign power of his State.

The people of Ireland owe obedience to the Lord Lieutenant, when acting in the sphere of his lawful powers, and the people of Canada and the East Indies owe a like obedience to the Governor General of those provinces, but they do not owe allegiance, for that is due to the sovereign and not to his representative.

As long as the Southern States continued to be members of the Federal Union, it was the duty of every citizen of those States to obey all the laws of the Federal Government passed in pursuance of the Constitution; but when those States seceded, revoked the powers they had conferred upon the Federal Government as their agent, created a new agent, and vested those powers in it, a new obligation was imposed upon the citizen—that obligation was to no longer obey the laws and orders of the Federal Government, but

those of the new agent or government instituted in its stead. Such was the mandate of his sovereign, to whom his allegiance was due. It follows, as a consequence, that when war was made upon the Southern States by the Federal Government, or rather by the Northern States, using the Federal Government for the execution of their unconstitutional and revolutionary purposes, it was a duty which the Southern citizen owed to his State to fight in defence of her cause, in obedience to her commands, and he that fought against her, "or gave aid and comfort," to her enemies, was *guilty of treason*.

The foregoing exposition of the issue between the North and the South, and defence of the position of the latter, is submitted to the calm judgment of the reader and of the future historian of the great struggle between those sections. Whether the argument sustains the conclusions arrived at, I do not pretend to say, but in the correctness of the conclusions themselves I have an abiding confidence, and believe in their competency "to stand the tests of scrutiny, of talent, and of time." (To be continued.)

ART. III.—THE NATURAL ADAPTATION OF ST. LOUIS TO IRON MANUFACTURES.

BY S. WATERHOUSE.

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MAGNITUDE OF FOREIGN MANUFACTURES.

In 1854, Great Britain produced more than 3,500,000 tons of pig iron, and nearly 2,000,000 tons of malleable iron. The manufactured products of its 600 furnaces was valued at \$125,000,000. The number of men engaged in quarrying, mining and manufacturing was 238,000. 2120 steam engines, with an aggregate force of 242,000 horses, were the motive power of this gigantic industry.

The following tabular statement exhibits the production of iron and steel in Europe during the year 1865 :

Country.	Pig Iron.	Steel.
Great Britain, tons	4,500,000	71,250
France	1,225,000	30,000
Prussia	515,000	33,250
Belgium	362,500	4,000
Austria	337,500	21,250
Russia	300,000	5,000
Sweden	225,000	6,500
Norway	25,000	000
German States	212,500	7,750
Italy	37,500	750
Spain	60,000	500
Denmark	15,000	000
Total	7,815,000	174,250

In 1866, 9,665,000 tons of ore, worth \$15,595,400, were extracted from British mines. The product of this ore was 4,523,897 tons of pig iron, with an approximate value of \$50,000,000.

In 1866, France made \$25,000,000 worth of pig metal; and for 1868, the estimated production of French furnaces was valued at \$37,000,000.

In 1867, the manufacture of French steel amounted to 58,000 tons.

An approximate estimate of the present yearly production of Bessemer steel is :

England.....	312,000 tons.	Austria.....	38,800 tons.
Prussia.....	75,920 ..	Sweden.....	27,560 ..
France.....	45,760 ..	Belgium.....	5,200 ..

Europe is now annually making more than 8,000,000 tons of pig iron. The magnitude of this product is impressive. But this is only the raw material which art is fashioning into myriad forms of usefulness and beauty. The dexterous hand of the artisan sometimes adds a thousand-fold to the original value of the material. It is estimated that European industry annually creates in the countless products of iron manufacture a capital of \$2,000,000,000. The distribution among the working classes of such an enormous sum must exert a beneficent influence upon the wealth and happiness of the nations of Europe. Thus this great industry provides alike the resources of domestic comfort and public defence—it equally heightens the enjoyments of peace and strengthens the sinews of war.

THE EXTENT OF AMERICAN IRON MANUFACTURES AND IMPORTATIONS.

Mr. McAllister, Secretary of the American Iron and Steel Association—from whose able report the following statistics are gathered—gives the appended exhibit of the amount of pig iron made with coke and raw coal :

	1866. Tons.	1867. Tons.	1868. Tons.
Pennsylvania.....	170,600	191,072	204,000
Ohio.....	97,198	126,375	22,000
West Virginia.....	1,198	1,200	
Other States.....			24,000

The quantity of pig iron made with charcoal was :

	1866. Tons.	1867. Tons.	1868. Tons.
Vermont.....	4,816	1,907	30,000
Massachusetts.....	14,514	12,262	
Connecticut.....	19,671	18,607	
New York.....	24,920	26,942	27,400
New Jersey.....	6,426	9,000	
Pennsylvania.....	57,841	60,155	59,600
Maryland.....	26,652	24,000	25,000
Ohio.....	87,888	89,525	86,000
Michigan.....	35,448	55,743	65,000
Missouri.....	25,663	19,500	
Wisconsin.....	5,241	5,400	
Kentucky.....	15,000	21,300	
Other States.....	8,500		77,000
Total.....	332,580	344,341	370,000

The total amount of pig iron made in the United States was :

	1866. Tons.	1867. Tons.	1868. Tons.
Anthracite.....	749,367	784,783	893,000
Raw bituminous coal and coke.....	268,996	318,647	340,000
Charcoal.....	332,780	344,341	370,000
Total.....	1,351,143	1,447,771	1,603,000

The number of tons of iron, native and foreign, consumed in 1866 in our domestic manufactures, was 2,120,142.

The consumption of American and European iron in 1866 was :

	Tons.	
Domestic.....	1,563,344	83 per cent.
Foreign.....	312,500	17 ..

In 1866, the production of native steel was about 1900 tons. In 1867, the amount of Bessemer steel made in this country was about 3000 tons ; and in 1868, 8000 tons.

The domestic manufacture and foreign importation of steel were :

	Tons.	Tons.
Native.....	19,125	30,000
Imported.....	21,566	16,700

The important facts contained in the following quotation from the Secretary's report challenge the consideration of American statesmen and political economists :

" It is impossible to ascertain from our Government records the quantity of iron and steel imported into the country during the year 1867, as the treasury accounts are made up to the end of each fiscal year (June 30th.) But we find by the last report of the British Board of Trade that, during the year ending Nov. 30th, 1867, the following quantities of iron and steel were shipped from the various British ports to this country. The quantities are reduced to net tons :

Pig.....	143,684
Bar, angle and rod.....	50,751
Railroad.....	188,770
Castings.....	1,357
Hoops, steel and plate.....	35,056
Old for remanufacture.....	21,566
Other iron (wrought).....	8,661
Total iron.....	449,845
Steel.....	21,556

These quantities exceed by 23 per cent. the importations of the previous year.

Of the whole quantity of pig iron exported by Great Britain during the period above given, the United States took 22 per cent., a much larger quantity than was exported to any other country. Of bar, angle, bolt and rod, we took 15 per cent., British India alone proving a better customer. Of the 651,859 tons of railroad iron exported, 188,770 tons were shipped hither, or 29 per cent. Leaving out India, which is a part of British domain, we imported more English railroad iron than any other twelve of her customers. Of hoops, sheets and boiler plate, we imported 35,056 tons, being 25

per cent. of the total quantity of English exports of this kind of iron. Of the 37,092 tons of steel exported by England, 21,566 tons, or 58 per cent., were shipped hither. Surely these are startling facts, and yet we are often told by British and American free-traders that this is the only country with which England has not free and unrestricted commercial intercourse."

In 1868, the total amount of domestic iron made from the ore was 1,640,600 tons.

In 1868, the product of American rolling mills was 1,105,000 tons.

In 1867, the quantity of railroad iron made in the United States was 462,100 tons; in 1868, 566,700 tons.

The amount of English railway bars imported to this country during the eleven months ending November 30th, 1868, was 278,035 tons.

During the year ending June 30th, 1868, the imports of iron and steel, and of articles manufactured from them, amounted to 522,615 tons, worth \$23,496,835; but the aggregate of pig iron made in this country in 1868 was 1,603,000 tons, valued at \$63,000,000.

It is yet too early for full returns of last year's operations, and consequently some of the above figures for 1868, being based upon incomplete data, may not be precisely accurate; but it is thought that these approximations will not widely differ from the ultimate and exact results.

THE ECONOMY OF DOMESTIC MANUFACTURES.

With coin at a premium of 35 per cent., pig iron can now be made at Carondelet for \$18 50 per ton in gold, or \$25 in currency. The economical importance of this fact is best enforced by practical applications. In some of the subsequent illustrations, St. Louis is represented as the exclusive Western manufactory of iron and the sole point of commercial distribution, not because it is believed that our city will ever attain an absolute monopoly of this industry, but simply because it is impossible from the lack of requisite statistics to state the relative manufacture and consumption of iron in the different sections of the country. But if fuller data permitted an exact exposition of these proportions, the force of the argument would not be weakened. The essential truth of the illustration is not impaired by a reduction of the figures. There would still be an economy proportioned to the actual quantity of iron manufactured at St. Louis.

One of our largest importers furnishes the following statement:

	In Gold.	In Currency.
Cost per ton of Scotch pig at Glasgow.....	\$12 50	\$16 87
Commissions.....	31	42
Insurance to New Orleans.....	16	21
Freight to N. O. and primage.....	4 00	5 40
Government impost.....	9 00	12 15
Drayage and commissions at N. O.....	1 11	1 50
Freight from N. O. to St. Louis.....	2 96	4 00
Insurance	29	40
Total cost at St. Louis.....	\$30 33	\$40 95

Scotch pig is one of the cheapest kinds of iron made in Europe. It is chiefly used by foundries. All the metal employed in the manufacture of superior hardware and cutlery commands a higher price. In 1866, 80,000 tons of Scotch pig iron were imported into this country. Upon the assumption that one-fifth of this quantity was consumed by the States naturally tributary to St. Louis, then, at the *lowest* cost of foreign iron and the *present* price of our own, the furnaces of Carondelet, in one year, and on a single article, would have effected a net saving of \$255,200, distributed \$400,000 among the laborers and proprietors of our iron works, retained in this mart and its commercial dependencies a productive capital of \$655,200, and prevented the foreign exportation of \$271,520 in gold.

The cost of a recent importation of English rails was :

	In Gold.	Currency.
Rails per ton at the Works.....	\$28 75	\$38 81
Commissions.....	71	95
Insurance to New Orleans.....	39	52
Freight to N. O. and primage.....	6 50	8 77
Government impost.....	15 68	21 16
Drayage and Commission at N. O.....	1 11	1 50
Freight from N. O. to St. Louis.....	3 70	5 00
Insurance.....	55	75
Total.....	\$57 39	\$77 46

The price of English rails, delivered in St. Louis, is generally from \$78 to \$80 a ton.

The mean cost of American rails is :

Rails per ton at Johnstown, Pa.....	\$75 00
Freight to Pittsburg.....	2 24
Freight from Pittsburg to St. Louis by rail.....	10 00
river.....	5 00
Insurance.....	50
Total cost by rail.....	\$87 24
river.....	\$82 74

The following statement of the actual and estimated consumption of new bars is furnished by our railroad companies, and applies almost exclusive to the State of Missouri :

Railroads	Tons.
Kansas Pacific—made in Pa., and delivered in 1868.....	6,000
Hannibal and St. Joseph—consumed in 1868.....	10,000
North Missouri—used in 1868, (70 per cent. English).....	12,000
Cedar Rapids—imported in 1868.....	4,000
South Pacific—to be used in 1869 (5600 tons of English iron already bought).....	10,000
Missouri Pacific—to be consumed in 1869.....	1,000
Iron Mountain—for the the entire line.....	11,500
Total.....	54,500

The construction of the Chillicothe and Omaha Railroad would swell this aggregate to 71,000 tons. In 1868, one of our St. Louis contractors purchased for the North Missouri and Cedar Rapids railroads 10,800 tons of English bars, delivered upon our levee at a total cost of \$875,000.

Now it is claimed that, at present rates, the rolling mills of St.

Louis can make rails for \$70 a ton, but upon the basis of \$75 a ton for rails of home production and the low average of \$80 a ton for bars of eastern and foreign make, then on the 54,500 tons of railroad iron, domestic manufacture would save \$272,500, and pay to our own labor \$4,087,500.

In 1867, 253,868 tons of re-rolled rails were consumed in the United States. If one-fifth of this amount had been remade in our own workshops, the laborers and capitalists of St. Louis would have received \$1,827,850.

If the Missouri Pacific changes its gauge during the present year, then, in 1869, the railroads of this State will need 5750 tons of re-rolled bars. At the present price of production, the remaking of these rails in our own mills would disburse in this community \$207,000.

In 1867, the amount of British railway iron imported into this country was 188,770 tons. If, at the present rates, one-fifth of these bars had been manufactured in the rolling mills of St. Louis, the industrial interests of the city would have been fostered by the disbursement of \$2,831,550, and Western railroads would have saved \$188,770.

In 1867, the United States used 396,322 tons of new railroad iron. Thus the consumption of new rails was then more than 1000 tons a day. The domestic production of one-fifth of this aggregate would have effected an economy of \$396,320, while the wages and profits of our artisans and manufacturers would have amounted to \$5,944,830.

The distance from St. Louis to San Francisco is, by the Union Pacific, 2283 miles; Kansas Pacific 2237 miles.

Now, according to our best iron masters, the Carondelet furnaces, using raw coal, will ultimately lessen the price of railroad iron \$15 or \$20 a ton. But at existing rates, with a reduction of only \$5 a ton, the use of St. Louis bars in the construction of these two Pacific railroads would have saved the country \$2,260,000, while the total expenditure of \$33,900,000 in the workshops of this metropolis would have stimulated every branch of industry to unprecedented activity and prosperity.

The erection in this vicinity of rolling mills and machine shops commensurate with our resources of iron and coal would be a national benefit, but the wealth of this industry would chiefly enrich the Mississippi Valley and its metropolis. Yet, thus far, so little use has been made of our natural capabilities that the very track which runs at the foot of our iron mountains is laid with British rails!

But pig iron and railroad bars are comparatively crude and inexpensive productions. Our cheap iron, wrought by our own skill into all its forms of commercial use, would save those immense sums which the country is now paying for European cutlery. The following table, transcribed from the records of our Custom-House, shows the amount of foreign iron and steel imported to this city *in bond*. The duties on the greater part of our importations are paid at other ports. Goods of this class are not included in the appended statement:

1867.			
	Number.	Foreign value.	Duty in Coin.
Rails.....	46,731	\$264,905 00	\$135,694 36
Tons Pig.....	2,078	30,746 00	18,708 00
Packages Steel.....	2,203	17,037 00	8,789 77
.. Hoop Iron.....	2,485	6,569 00	2,745 15
1868.			
Rails.....	61,955	\$345,222 00	\$188,446 65
Tons Pig.....	3,039	43,474 00	27,351 00
Packages Steel.....	641	32,223 00	11,306 83
.. Hoop Iron.....	584	1,625 00	1,009 74

In 1867, the merchants of St. Louis sold about \$8,000,000 worth of crude ironware. The manufacture of this iron by our own artisans into the costlier articles of hardware would have enlarged our municipal revenues and promoted the well-being of the industrial classes.

From the first of June, 1867, to the first of November, 1868, the St. Louis Board of Water Works ordered 7551 tons of pipe, and 215 tons of special castings, at a total cost of \$612,329. This quantity—three quarters of which have already been delivered—includes not only the main pipe required for the new reservoirs, but also the distribution pipe necessary for the old works. Of the above amount of pipe, St. Louis, Cincinnati, and Philadelphia furnished the following proportions :

St. Louis 2918 tons at a cost of.....	\$248,472
Cincinnati 2155	170,000
Philadelphia 2478	193,857

The freight from Cincinnati was \$4 per ton, and from Philadelphia \$17 25 per ton. In 1867, the estimated expense of manufacture at Philadelphia, exclusive of the value of the iron, varied from \$12 50 to \$14 50 per ton of 2240 pounds. Now, upon the assumption that iron can be made at Carondelet for \$25 a ton, and that pipe can be cast at home for \$15 a ton, then, on the above orders from Cincinnati and Philadelphia, St. Louis, by the manufacture of its own pipe, could have saved, in 17 months, on freight alone, \$51,360, and have paid \$185,320 to the industry and enterprise of its own citizens. The total quantity of pipe ordered by the Water Commissioners up to the first of March, 1869, was about 9800 tons, at an estimated cost of \$786,000. Of this amount, 4800 tons, costing \$395,000, is furnished by St. Louis.

These remarks are made in no spirit of censure. At the time when these orders were given, St. Louis had no adequate facilities for the manufacture of all of its own pipe; and, even if its productive capacity had been equal to its wants, the Water Board was bound, by express provision of law, to award the contracts to the lowest responsible bidder. Our Commissioners have gone to the limits of the law in their encouragement of domestic industry; and the success of the St. Louis pipe foundry, fostered by their patronage, verifies the foregoing observations and enforces the importance of home manufactures.

The manufacture of railroad engines is an important industry. St. Louis is capable of supplying the demand of Western railroads.

An energetic use of natural advantages and skilled labor would enable this city to equip all the railroads of the Mississippi Valley. A manufactory of first class locomotives would, doubtless, receive large orders from neighboring States. The following data, which refer to but one railroad beyond the limits of Missouri, show the present magnitude of this business.

Railroads.	No. of engines	
	in 1868.	to be built in 1869.
South Pacific.....	6	..
Kansas Pacific.....	29	..
Iron Mountain.....	32	20
North Missouri.....	42	..
Hannibal and St. Joseph.....	54	10
Missouri Pacific.....	55	45
Total.....	218	75

Nearly all our locomotives are made at the East. The average cost of an engine at the works is about \$13,000, and its freight to the banks of the Mississippi is from \$800 to \$1000. Apart from the price of transportation, which at the lowest rate amounts to \$234,400, the cost of these 293 engines is \$3,809,000. The manufacture of locomotives must expand equally with the rapid development of our railroad system. St. Louis cannot afford to neglect a business so full of present importance and prospective growth.

In 1868, the commercial marine of this city consisted of 234 steamers and 158 barges. Upon the assumption that the average cost of the engine and boilers of each boat was \$13,000, the total expense for motive machinery of 234 steamers was \$3,042,000. A wooden barge 190 feet long, 34 feet wide, and 8 feet deep, costs from \$10,000 to \$12,000. An iron barge of the same dimensions would probably cost from \$25,000 to \$30,000. Vast amounts of grain and general freight will yet be transported in barges upon the Mississippi and its tributaries. The movement, now in its infancy, will yet expand into an immense system of transportation. If the proposed substitution of iron for wood in the construction of barges should prove economical, then another important industry is opened to the enterprise of St. Louis. The cost of 158 barges, at \$25,000 a piece, is \$4,950,000. A business which in its incipiency is capable of such results, must, in its full development, require an enormous outlay of capital. The probabilities of profit and expansion which the construction of steamboat engines and iron barges presents must attract the attention of our machinists. They enjoy facilities which almost guarantee a monopoly of this branch of manufactures.

The preceding figures and illustrations show the natural facilities of St. Louis for the manufacture of iron and the economic advantages of domestic production. An adequate development of our mineral resources and metallurgic capabilities would make St. Louis and Carondelet the Sheffield and Birmingham of the continent. The quotations of this market will yet control the iron trade of America.

THE INDUCEMENTS OFFERED TO EUROPEAN IRON MAKERS AND WORKMEN.

Only a limited improvement has yet been made of our facilities for the manufacture of iron. In 1867, the furnaces of Missouri produced about 29,300 tons of pig metal. The product of 1868, was nearly 33,000 tons. This quantity, when compared with our resources of ore and coal, is inconsiderable. An ample field lies open to foreign enterprise. All that tract of country adjacent to Pilot Knob is rich in mineral wealth, and explorations may develop better ores than any yet discovered. But the quantity of ore already disclosed by scientific survey is sufficient to supply a thousand furnaces for ages. The preceding statistics show how cheaply this ore can be smelted. Great wealth awaits the hand of enterprise. The iron masters of Europe, with their capital, experience, and skill, could here make large accessions to their fortunes. They would, too, build up a great industry, and earn the gratitude of the American nation. The interests of foreign miners, furnace men, and machinists would be promoted by emigration to Missouri. Many of the mines of Europe are deep, damp and unwholesome. In many cases, too, the thinness of the veins of mineral constrains the miner to labor in an unnatural and painful attitude. The Illinois coal beds lie near the surface and the seams are sufficiently thick to permit an upright posture. The mines are well ventilated and healthful. Accidents from fire-damp are almost unknown. The Iron Mountain and Pilot Knob ore is quarried hundreds of feet above the surface of the surrounding valley. It would be difficult to conceive of mines more accessible or easily worked. No other locality offers miners conditions more favorable to the prosecution of their work.

Again, while the wages of the European laborer are small, the compensation of the American workingman is liberal. The following prices, now paid in St. Louis and vicinity, are computed at gold rates, with coin at 35 per cent. premium, and their equivalent value given in the currencies of England, France and Prussia.

	UNITED STATES. Dollars.	GREAT BRITAIN. £. s. d.	FRANCE. Francs.	PRUSSIA. Thalers.
Furnace manager.....	1,480 00 per year.	305 15 10	7,931.40	2,110.85
Founder.....	1,330 00 ..	274 16 00	7,127.54	1,909.82
Engineer.....	130 00 .. month.	26 17 4	696.67	186.67
Keepers.....	1 95 .. day.	8 2	10.45	2.80
Helpers.....	1 66	6 11	8.89	2.38
Fillers.....	1 48	6 2	7.93	2.11
Cinder-men.....	1 48	6 2	7.93	2.11
Other workmen.....	1 30	5 5	6.96	1.86
Miners of iron ore.....	1 30	5 5	6.96	1.86
.. .. coal.....	2 96	12 4	15.86	4.25

Machinists receive from \$1 90 to \$2 50 in gold value. If St. Louis had manufactories of elaborate cutlery the workmen would get still higher pay.

In the last report of Hon. David A. Wells, Special Commissioner of the United States Revenue, it is stated that the wages paid in American iron founderies and machine shops are 58 per cent. higher

than those paid in England. According to this report, the price of puddling iron per ton in

New England is.....	\$5 00
New York.....	5 50
New Jersey.....	6 00
Eastern Pennsylvania.....	6 00
Western.....	6 75
Western States.....	7 50
Average price in currency.....	6 12½
.. gold in United States.....	4 37½
.. .. England.....	2 37½
.. .. Belgium.....	1 20

The average weekly earnings of puddlers in the leading iron producing countries are as follows :

United States (gold).....	\$16 54
England.....	8 75
France.....	8 00
Belgium.....	6 00
Russia, (at the Vicksa Iron Works).....	1 93

The industrial conditions of Europe and America are widely different. The arduous and protracted toil which there barely procures the means of subsistence would here earn a competency. While in some districts of Europe, meat and tea are seldom seen upon the laborer's table, here they are found upon every man's board and form a part of the ordinary fare. The articles of food and drink which in some portions of the Old World are infrequent luxuries, in our own country are enjoyed as daily necessities.

The women and children who work in the mines and about the furnaces of Europe would here be exempt from such debasing toil. While families there are often reared in mental and physical degradation, here children enjoy the opportunities of public education and personal advancement, and their bodily strength is not impaired by insufficient food and excessive labor. In Europe, life is often a constant and cheerless struggle for a livelihood ; in America, toil is generally the cheap price of personal comfort and independence. Higher wages, larger fortunes, popular education, social progress, political rights and free worship invite the miners, iron-masters, machinists and artificers of Europe to accept the hospitable welcome of Missouri and aid the development of its wonderful resources.

THE INTERESTS AND DUTIES OF ST. LOUIS.

The iron masters of St. Louis are giving conclusive proofs of their confidence in the excellence of the Big Muddy coal. Convinced by the success of the Carondelet experiment, they have already organized two companies for making iron. One of these companies is now erecting at Carondelet a large double furnace, at a total cost of \$155,000. The height of the works is 60 feet and the diameter of the boshes 14 feet. These furnaces will be in blast by the first of next July.

The Big Muddy Coal Company, with a separate capital of \$250,000, are putting up a double furnace 75 feet in height, with

boshes 16 feet in diameter. These works, built at Grand Tower, Illinois, will settle the question of economy in the freightage of material. In this case, the ore will be carried to the coal. Many of our iron men maintain that this is the cheaper course. If the present experiment proves that the transportation of ore is less expensive than that of coal, then we congratulate our great sister State upon her good fortune and prospect of industrial development. But, in any event, the iron bands, wrought from the ore of Missouri and the coal of Illinois, will bind the two Commonwealths in an indissoluble union of interests.

It is confidently asserted by some of our iron founders, that if the distance between the coal and the ore were reduced to 75 miles, by the construction of a railroad from Pilot Knob down Saline creek to the Mississippi river, then a ton of ore and a ton of coal could be brought together on either side of the Mississippi at a cost of \$4 for the freight of both, and iron could be made on the banks of the Big Muddy for \$20 in currency per ton.

The progress already made is encouraging. The Carondelet furnace was put in blast last April, and already four large furnaces are in process of erection. They will be in operation in less than a year. This is the initial step of an industrial expansion which should be limited only by the bounds of commercial demand. Our present production of iron is entirely unequal to our natural facilities for manufacture. The neglect of such resources is discreditable to the enterprise of St. Louis. Indifference to interests of such magnitude will prove fatal to our prosperity. Nothing but an inglorious negligence of opportunities can prevent the manufacturing greatness of St. Louis.

This city ought to be the iron master of the continent. The immensity of foreign iron manufactures is shown in the foregoing statistics. If 1000 furnaces—each making 20 tons a day—were now in blast upon the banks of the Mississippi, their aggregate yield would be far less than the present iron product of Europe. The productive capital which this industry creates is enormous. It ameliorates the condition of the working classes, and increases the wealth of nations. St. Louis should emulate the greatness of the manufacturing cities of Europe. Our "pigs," like those found on the banks of the Tiber, mark the site of an imperial city. They are the augury of a great destiny.

If St. Louis were the center of American iron manufactures, it would attract to this vicinity a variety of kindred industries. The establishment of furnaces at Carondelet would cause the erection of rolling mills, machine shops, and manufactories of cutlery and hardware. The millions annually spent in these workshops would relieve the wants of the laboring classes, lighten the burdens of taxation, infuse fresh vitality into every department of industrial and commercial life, promote domestic manufactures, and save the immense capital now paid out for foreign productions, ensure the prosperity of St. Louis, and benefit the whole Mississippi Valley. For the attainment of these great results, our citizens should unite

in efficient co-operation; and our banks should favor the companies which organize for manufacturing purposes with liberal accommodations.

We close our discussion of this subject in the words of a former article:

A dozen years ago, England had 600 furnaces in operation, with an aggregate yearly capacity of 3,500,000 tons, and an annual productive value of \$125,000,000. It was in view of such resources and enormous industrial wealth, that Mr. Gladstone recently declared in the British House of Commons that the "United Kingdom, with its 30,000,000 of people, is as great in commerce as France and America with their 70,000,000. It is, then, our possession of coal, near what depends on coal, that has given us this extraordinary pre-eminence in commerce and industry."

St. Louis enjoys all the conditions to which Mr. Gladstone ascribes the industrial greatness of England. In the immediate vicinity of this city, there is an exhaustless supply of coal, iron, limestone and fire clay.

The nearness of our iron mountains to coal of a suitable quality and quantity to smelt them, pre-ordains this city to be the great central machine shop of this continent. The establishment in this vicinity of iron works sufficiently large to answer the needs of this valley would bring tens of millions annually to our municipal coffers. It would give a powerful impulse to the growth of St. Louis, improve our markets, and quicken the activity of every trade. If this great enterprise can be carried into successful execution, no rivalry can endanger the pre-eminent greatness of St. Louis.

ART. IV.—PRELIMINARY REPORT TO THE NEW ORLEANS ACADEMY OF SCIENCES, OF A GEOLOGICAL RECONNOISSANCE OF LOUISIANA.

BY E. W. HILGARD, OF THE UNIVERSITY OF MISSISSIPPI.

We have been furnished with the following interesting report by Professor John C. Miller and Judge John B. Robertson, a special committee of the New Orleans Academy of Sciences, who were directed to have the same furnished to DeBow's NEW ORLEANS REVIEW and the Bureau of Immigration for publication.—[ED. REVIEW.]

As heretofore explained, the object of the exploration of western Louisiana, made by myself during parts of the months of May and June last, under the auspices of the Academy of Sciences and of the Board of Immigration, was a general reconnoissance of the geological and agricultural features of that portion of the State, rather than a detailed survey of any particular region. This I originally pro-

posed to do single handed, and without any attempt at a systematic collection of specimens, upon the supposition that the geological map of Louisiana would prove to be essentially the reflected image of that of Mississippi, whereby the detailed examination of specimens would be rendered less necessary. Yet, while the presumption was proved substantially correct by the event, there are also points of diversity which, without the aid of a collection for comparison, it would have been exceedingly difficult to interpret correctly, since even with that advantage, it has been necessary to call into requisition the best efforts of chemical and microscopical analysis. Not only, therefore, has the pack mule proved a most important auxiliary to the success of the expedition, but its usefulness, as well as the quality and quantity of the work, has been signally enhanced by the intelligent and efficient assistance of my traveling companions. Especially am I indebted to our fellow-member, Dr. J. R. Walker, whose strong arm and cheerful spirit were always ready in time of need, while at the same time Mr. T. Scott Miller's administration of his onerous and patience-trying charge, has been worthy of all praise.

With the route originally chosen, and the changes therein—rendered necessary by circumstances—the Academy is already acquainted through the report of Dr. Walker. Its selection was based upon the presumed analogy of the geology of Mississippi and Louisiana, and preliminary information obtained from various sources, chief among which were the explorations of Judge Robertson, and data furnished by Messrs. Halliday and Coningsworth, of the Academy. Also valuable suggestions and data from Capt. G. W. R. Bayley, Gen. Blanchard, and others, of the city, and Judge Crawford, of Columbia, La.

The courtesy of the Opelousas Railroad, and Attakapas Transportation Company, in giving the party free transportation over their lines to New Iberia, effected a material saving of time, as well as of the somewhat scanty financial resources of the expedition. From New Iberia the party proceeded on horseback, at a rate averaging throughout the thirty days, between twenty and twenty-one miles per day; a distance which, in a diversified country, would have been too much to allow of even a reconnoissance, but, under the circumstances, was advantageously exceeded, and even doubled in several instances, where the uniformity of the country gave sufficient evidence of the

sameness of formations and features already studied. It was thus possible to devote more time to the examination of important localities, without risk of failing to reach the goal in time, or coming to conclusions based upon imperfect and hasty observation. Much valuable assistance was also received from courteous and hospitable gentlemen on the route, to whom acknowledgements will be duly made in the final report, which must await the completion of the chemical examination of the specimens.

THE PRAIRIES OF SOUTH LOUISIANA.

From the mouth of the Teche to Washington, on the Cocodrie, the west bank rises gradually and regularly, until above the latter point it forms bluffs, elevated seventy to one hundred feet above tide water. As seen from the stream, therefore, the country appears hilly, and hence, probably, have arisen the popular names of "Cote Gelee" and "Grand Coteau," which, to the observer traveling from Iberia to Opelousas and Ville Platte, seem singularly inappropriate, as he looks in vain for anything deserving the name on the level or slightly rolling prairie plateau, which is highest near the edge of the Mississippi bottom, and slopes in general to the SSW., as indicated by the drainage of the country towards the Nezpique and Mentau. In the southern and eastern portions of this region, too, the surface deposit of fertile, brown subsoil loam is thickest; the fertility of the country, on the whole, decreasing gradually as we advance northwestward from the Teche. The outcrops on the streams, as well as the phenomena observed in wells, show the entire prairie region to be underlaid by the strata equivalent to those of the Port Hudson bluff, where, down to a certain point, we likewise observe a decrease in the conditions of fertility of the materials from above downwards. As the surface of the formation was, doubtless, originally level in an east and west direction, it is probable that the white, ashy soils which prevail in the level pine woods and pine prairies of northwest St. Landry and north Calcasieu, are derived from the arid white and yellow siliceous silts and hardpans so prominent in the upper portion of the Port Hudson profile.* An inspection of this profile also suggests what is true for the greater part of the prairie region, viz: that while in shallow wells (15 to 35 feet, according to location,) good drinkable—though not very cold,

*See my paper on the "Geology of Lower Louisiana, and the rock salt deposit of Petite Anse," p. 3.

and frequently limy—water may be obtained, wells of greater depth will strike fetid clays and bad water, unless sunk entirely below the Port Hudson strata. And, as will appear hereafter, artesian water can, doubtless, be obtained at moderate depths over the entire region.

Few sections of the United States, indeed, can offer such inducements to settlers as the prairie region between the Mississippi bottom, the Nezpique and Mentau. Healthier by far than the prairies of the Northwest, fanned by the sea breeze, well watered—the scarcity of wood rendered of less moment by the blandness of the climate and the extraordinary rapidity with which natural hedges can be grown for fences, while the exuberantly fertile soil produces both sugar cane and cotton in profusion, continuing to do so in many cases after seventy years exhaustive culture—well might the Teche region be styled by its enthusiastic inhabitants the "Garden of Louisiana." But a large part of this peculiarly agricultural region is now merely a range for herds of cattle, and in its northern portion, where intelligent culture is the more necessary, as the soil is less thrifty, a quarter or half bale of cotton per acre is oftentimes raised where an entire bale should be the minimum, if justice were done to the soil. The streams are usually bordered by fertile hommocks, a quarter to a half mile wide, well timbered with lowland oaks, sweet gum, magnolia and poplar, *Liriodendron*, and more or less elevated above the stream, according to distance from the coast.

An undulating line laid through Ville Platte in a WSW. direction to the Calcasieu river, forms the northern limit of the prairie country; beyond, the Port Hudson strata overlaps older formations in undulating uplands, which, east of the Nezpique waters, are fertile and timbered, chiefly with oak and some short-leaved pine, but west of that stream form level and marshy, or slightly undulating long leaf pine woods, possessing a white siliceous soil, mingled with "black gravel, (bog iron ore,) of which numerous specimens are exposed to view by the labors of industrious crawfish—the only tillers of that soil at the present time. A similar soil, only whiter, prevails in the so-called "bay-galls"—marshy flats, overgrown with a dense thicket of "bay-galls," *Laurus carolinensis*, candleberry, and other shrubs, in which some of the smaller tributaries of the Nezpique and Calcasieu rivers take their rise.

The prairies of northeast Calcasieu are very level, often marshy,

with a grey, ashy soil, and are dotted with clumps of long-leaved pine, while a low shrub, *Styrax pulverulenta*, covers densely the lower grounds. As we advance southward, black jack and post oak, mingling with the pine, testify of an improvement in the soil, on which innumerable herds of cattle and horses find luxuriant pasturage, while the houses of the pastoral population are dotted along the watercourses to the right and the left. These streams usually have their heads in low, marshy flats, but are often bordered by bodies of good, arable land, well timbered. In the more southerly portion, however, within forty or fifty miles of the coast, the clumps and strips of timber disappear altogether—the Calcasieu prairie proper being a treeless, perfectly level plain, whose soil improves to the southward, in consequence of the approach to the surface of a calcareous clay stratum, which is frequently exposed in washes. It is also struck in wells at the town of Lake Charles, occasionally with beds of marine shells, as is the case on the Mississippi coast.* On the shore of the lake, outcrops of reddish clay, sand and loam recall vividly the profile at Cote Blanche.†

Extensive cypress swamps border the lake and the Calcasieu river above; numerous saw mills are engaged in cutting this timber, as well as that of the long-leaf pine, which borders the right bank, in lieu of the prairie on the left. No prairie, but only pine woods, which gradually become rolling as we advance northward, exists north of the west fork of Calcasieu, while south of the same, after traversing some pine forest, on the heads of Bayou Choupique, we find the prairies and marshy flats, with here and there a timbered island. On one of these islands are the petroleum springs which caused the sinking of the deep bore that has revealed so unexpected a mineral treasure.

THE OIL SPRING ISLAND.

The approach to the island is neither easy nor altogether pleasant. Full half a mile of deep, grassy bog has to be traversed, in which inexperienced horses and riders do some heavy floundering, and at the end of the journey the senses are greeted by an odorous breeze which, as one of the party graphically remarked, seems to blow directly from the lower regions. These are the effluvia of the principal well, spouting at the rate of sixty-five gallons per minute, a

*Report on the Geology and Agriculture of Mississippi.

†On the Geology of Lower Louisiana, *American Journal of Science*, Jan. 1869.

saturated solution of sulphuretted hydrogen in water, otherwise but slightly impregnated with mineral matter, but whose deadly effect, even upon vegetable life, is strikingly evidenced by the deadening of the marsh grasses for a considerable distance out. The deleterious influence does not seem, in any great degree, to extend to the general health of the workmen; they sometimes get badly "choked" while working near the mouth of the well when there is no breeze, but rather like the general odor. Had the British medical expedition up the Niger ascended the Calcasieu instead, they might have had the satisfaction of seeing their test paper blackened to any extent! Nor does the effluvium appear to interfere in any sensible degree with either the numbers, size, or appetite of the mosquitoes.

I will not discuss in this place the profile of the strata penetrated in this bore, which can be more fittingly done further on. There are several more petroleum and gas springs on the island and in the marsh, forming in several places a regular asphaltum pavement; the gas is inflammable, and explodes violently when mixed with air and lighted; it is evidently, in the main, marsh gas, or fire-damp—hydrid of methyl. But the gas now escaping from the deep well along with the water, seems to be chiefly sulphuretted hydrogen; the gas and water of the petroleum level having been tubed out, the present flow is essentially from the surface of the great sulphur bed.

There is also a "sour spring" on the island, which evolves a great deal of combustible gas but no petroleum; its water is acid and sweetish astringent, containing, in the main, sulphate of alumina, with gypsum and Epsom salt, and a little carbonate of iron. Considering the qualities of these waters, the island might be made a useful, albeit not a very pleasant, place of resort for patients.

PINE TIMBER.

The portion of Calcasieu parish lying west of the main Calcasieu river, and north of the west fork, together with the contiguous portions of St. Landry, Rapides, and the southern portion of Sabine, forms the main body of the long-leaf pine lands of the State, affording an immense supply of fine timber, while cultivation is restricted to the bottom and lower hillside lands. These, however, in the well watered region lying between the Little and the main Calcasieu, include some fine bodies of land, as in the Sugar Town region on the Ooskey, (usually called "Whisky,") Chitto, and Bundick's creek.

The southern portion of this pine territory is level, sometimes marshy, and appears to be underlaid, as far north as the line of the prairies, by the Port Hudson strata. Beyond this line, however, they become more undulating, and sandy, sometimes gravelly, ridges announce a change of formation.

THE GRAND GULF GROUP.

On the waters of Nezpique, as well as on those of the Calcasieu, we here find in the beds of the streams outcrops of the materials characteristic of the Grand Gulf group of rocks, viz: hard, blue clay, ("soapstone,") or clayey sand, and soft sandstone ledges, void of fossils, and usually overlaid by the gravelly sands of the southern drift or orange sand epoch, whose ridges are capped by ledges of ferruginous sandstone. These ridges become very prominent in south Rapides, near the base line of the survey; and northward of Bayou Zoury, on the waters of bayous Anacoco and Taureau, outcrops of the Grand Gulf rocks become abundant and determine measurably the character of the surface. The soils, resulting from the decomposition of the hard clays, claystones, and "rotten sandstones" of this formation, are generally indifferent. But on the upper Anacoco, northward of Huddleston, we find the outcrops of a stratum of gray, calcareous clay, which I have also observed on Sicily Island, at Grand Gulf, and on Pearl river, in Marion county, Mississippi.* It is this stratum which gives rise to the peculiar soils of the Anacoco prairie region. A deep black, very heavy soil, of a waxy touch, appearing on low ridges and at the foot of higher ones, and underlaid by the clay marl stratum itself as a subsoil. This soil is exceedingly fertile, as also the adjacent bottoms. It is, however, but rarely in large tracts; the largest, the Anacoco prairie proper, on Prairie creek, not exceeding about a thousand acres, while smaller patches occur, more or less, for some twenty miles to the eastward of the Anacoco. Pine uplands, with a heavy, red subsoil, whose greater or less fertility is indicated by a corresponding admixture of oaks, seem to be the prevailing feature of south Rapides, until the river bottom is approached.

As we advance towards the Taureau, the ridges become more abrupt and the outcrops of rotten sandstones on the hills more frequent—the usual symptom of the approach to the northern edge of

*Mississippi Report, 1860.

the formation. The useful materials of the Grand Gulf series, besides the marl above mentioned, consist of building stones and clays; amongst these, a remarkably refractory fire clay occurring in south Caldwell and north Catahoula, now known as "chalk rock."

THE VICKSBURG GROUP.

Where the Alexandria and Sabine Town road crosses the Taureau, a change is obvious from the improvement of the soil, which bears, even on the ridges, a robust growth of upland oaks (prominent among which is the white oak,) with some short-leaved pine, while the bottoms are evidently profusely fertile. Small patches of prairie on the hills, with occasional outcrops of marl and fossiliferous limestone, show that we have reached the older tertiary, to-wit: the rocks of the Vicksburg group, underlying those of Grand Gulf. A stiff, red subsoil prevails here also; as, in fact, is the case over the greater portion of north Louisiana, from the predominance of clay formations underground.

In Mississippi and northeast Louisiana, the Vicksburg age is chiefly represented by alternating strata of highly fossiliferous marls and limestones. In west Louisiana, on the contrary, the marls are rather a subordinate feature, fossils are less abundant, and chiefly such as pertain to a shallow sea; while the limestone containing them is usually interstratified with laminated clays, clayey sands, and lignite, and sometimes is altogether superseded by the latter materials, which are the products of deposition of shallow, brackish or fresh water marshes or lagoons. These features are strikingly illustrated by the interesting bluff at Sabine Town, Texas, as well as in those of the watercourses east and northeastward of that locality.

The territory underlaid by the Vicksburg rocks forms a band with nearly parallel sides, traversing the State in a WSW. direction, with a width of about thirty miles; intersecting Red river about Cloutierville on its southern, and Natchitoches on its northern border. The Casatche Hills, from coincident descriptions repeatedly given me, appear to consist of the Vicksburg rocks, capped by the ferruginous sands and sandstones of the southern drift or orange sand.

Good limestones for lime burning occur abundantly on the territory of this formation, its quality¹ and quantity improving, on the

whole, as we advance from the Sabine to the Washita ; the same is true as regards the marls interstratified with the limestone ledges, which will be found especially efficacious in increasing the thriftiness of the heavy soils usually prevailing on this tract.

THE MANSFIELD GROUP.

A glance on the geological map of Mississippi, (of which that of Louisiana is thus far but the reflected image,) shows that northward of the narrow band of Vicksburg rocks which traverse the State, there runs parallel to it a broad belt of territory underlain by the rocks of the Jackson tertiary. That the same formation exists in Louisiana, on the Washita, is proven by the discovery of its characteristic fossil, the huge *Zenglodon*, at a point about halfway between Columbia and Monroe, as stated by the late Dr. Harlan, in 1832. I therefore expected to meet the same formation in northwest Louisiana, but was disappointed. The limited time at my disposal did not allow me to extend my own observations west of Red river beyond Mansfield ; but from reliable data obtained from residents, I have little doubt that the same lignitic clay formation which underlies the entire region from the line of the Vicksburg group up to that point, extends as far north as Shreveport, and probably to the Arkansas line. East of Red river, the same formation continues unchanged in Bienville and Jackson, at least as far north as Sparta and Vernon ; nor have I any reason to believe that any essential change occurs farther north, within the State. It would thus seem that the Jackson strata are confined, in Louisiana, to the Washita region, while a large portion at least of the lignitic formation of north Louisiana evidently corresponds to the strata overlying the former, and underlying the marls and limestones at Vicksburg. In Mississippi these underlie but a small area ; but as their extensive development in Louisiana necessitates the adoption of a name, I propose to designate them as the "Mansfield Group," from the locality at which they are characteristically developed. The deep ravine which heads in the western portion of the town of Mansfield, exhibits all the varieties of gray or blue laminated clays and clayey sands which constitute the usual materials, but shows, in addition, a ledge of impure limestone, with numerous impressions of lignitized fragments of plants, which trends in a northwest direction, and is probably identical with that found near Shreveport. Numer-

ous basin-shaped beds of lignite occur in this formation, some of which, from their easy accessibility to the navigation of Red river, will doubtless soon become of considerable practical importance, as the quality of the material is generally excellent.

IRON ORES.

Another important mineral, occurring chiefly on the Mansfield territory, is the concretionary brown iron ore, which pertains, properly speaking, to the orange sand deposits everywhere capping the lignitic strata. The latter being, in a great measure, impervious to water, the ferruginous solutions which were so extensively active during the orange sand epoch,* were kept stagnant and have, in many cases, formed very extensive deposits of a somewhat sandy, concretionary ironstone, containing from forty-five to sixty five per cent. of hydrated iron oxide. While these ores are none of the richest, their freedom from all injurious ingredients, such as sulphur and phosphorus, renders them specially adapted to the production of the finest qualities of wrought iron and steel; their impurities being, in a great measure, only such as are requisite for the formation of a proper slag.

The best deposits of this ore which I have seen lie north of Pleasant Hill, in DeSoto parish, and in the salt lick region, on the Saline and Dugdemona, in south Bienville, where limestone is also convenient. Others are described by Judge Robertson as existing farther north. As these districts are, for the most part, densely timbered, these deposits will, doubtless, become of considerable importance whenever the means of communication shall be improved.

FACE OF THE COUNTRY.

With the exception of the level country bordering upon the lakes north of Red river, the territory of the Mansfield group is all undulating, oftentimes hilly, especially near the watercourses, and immediately south of Red river. The prevalent subsoil, as before stated, is a pretty stiff, red clay, derived from the underlying lignitic clays, and apparently of good native fertility, bearing a growth of upland oaks and, more or less, short-leaved pine. In north Natchitoches, south Bienville, and Winn, there is a considerable body of long-leaved pine on the Saline and Dugdemona, which is but partially interrupted on the territory of the Vicksburg rocks, continuing ENE.

*See Mississippi Report, 1860.

into Catahoula parish. As the long-leaved pine prefers a sandy soil, it frequently occupies the higher ridges only, where the orange sand predominates; while oaks, and short-leaved pine cover the slopes where the soil is stiffer and more productive, from the proximity of the underlying lignitic clay strata.

THE SALINES OF NORTH LOUISIANA.

Salt licks, not unfrequently with salt springs, occur sporadically scattered on the Mansfield territory north of Red river, chiefly on Saline and Dugdemona bayous, and on Lake Bisteneau. In most cases, limestone is found at or near these licks, and is always reached in digging or boring the salt wells. Sometimes the limestone occurs without the salt, either outcropping bodily or (as on the upper Dugdemona) indicated by black prairie spots. This limestone is mostly of a very peculiar character, consisting of horizontal layers of variously colored calcareous spar, so that on the vertical fracture it has a banded, marble like appearance; it is sometimes hard and solid, but more frequently crumbles easily under the hammer, somewhat like loaf sugar. This kind of limestone seems to be always void of fossils; but occasionally we find associated with it a rock closely resembling the "rotten limestone" of Mississippi and Alabama, which contains an abundance of shells. Having had access to this rock only in the piles of material dug from salt pits years before, at King's Salt Works on Bayou Castor, I was able to find in it only the difficultly destructible shells of oysters. Amongst these were *exogyra costata* and *gryphaea pitcheri*, the leading shells of the cretaceous formation. And as in boring wells in these localities the limestone (?)* continued down to great depths, it is clear that we see in these cretaceous outliers the summits of ancient hills, around which the subsequent lignitic deposits gradually accumulated until (except in a few cases) the latter entirely covered even the hilltops. On the lower Saline bayou, however, as well as near Winfield, we find ridges of this peculiar banded limestone elevated fifty to ninety feet above the drainage of the country at the present time.

In mapping these saline outliers, from Cedar lick below Winfield to Lake Bisteneau, we find them trending in a NW. and SE. direction. A continuation of this line will strike, on the one hand,

*So reported, but may have been gypsum in many cases.

the main body of the cretaceous formation in Hempstead county, Arkansas, and Bowie county, Texas ; on the other, the isolated outcrop of banded limestone SW. of Chicotville, in St. Landry, and finally, the rock salt mass of Petite Anse.

It thus seems that a (now mostly subterraneous) cretaceous ridge forms the backbone, as it were, of Louisiana, continuing certainly to within seventy miles of the coast. It were premature in the absence of more positive testimony, to assert for the rock-salt of Petite Anse the same origin as that of the salines of north Louisiana, but with the facts before me, it seems to me most probable that such is the case. To the existence of this ridge must be ascribed the absence of the deep-sea Jackson strata, whose shells could not exist in a marsh and lagoon formation, such as produce lignitic deposits. In digging salt pits in north Louisiana, gypsum has repeatedly been found underlying the limestone, at a depth of eighteen to twenty-two feet ; when salt water was reached. At Rayburn's works in SE. Bienville, about two feet of compact granular gypsum, beautifully banded, were penetrated. The value of this material for agricultural purposes is too well known to need comment.

The crystalline limestone is in most cases very pure, sometimes chemically so, and will make the strongest possible lime. Much of the limestone near Drake's Salt Works on Saline byaou is of this character, and being readily accessible to navigation through Red river and Saline Lakes, with abundance of fuel at hand, there is no reason why the lime manufactured there should not replace the northern article in the markets of the lower Mississippi. Equally pure, but less convenient to communication, are the limestones near Winfield, and Chicotville.

As regards the production of salt, the extent to which the manufacture has been carried during the war, with very imperfect means, shows that north Louisiana might readily supply a large portion of the Southwest. The brines seem to vary from three to as much as eight to ten per cent. of salt, and the supply seems to be practically unlimited, at least at the larger licks, such as Rayburn's, Price's, and Drake's. At the latter, the brine is remarkably pure—almost free from gypsum ; such at least is the case with the water of the deep (1011 feet) artesian well at that locality—one of eight

bored there, without however, obtaining better brine than is gotten in pits, 18 to 24 feet deep.

I have not visited the salt works on Lake Bisteneau, but understand that the phenomena there coincide closely with those observed on Saline bayou. The salt produced there I analyzed during the war; it was almost chemically pure.

THE BORED WELLS OF CALCASIEU—PROFILE OF

KIRKMAN'S WELL		W.—700 YARDS.—E.		LOUISIANA OIL CO.'S WELL	
Thickness feet.	MATERIALS.	Forma- tion.	Thickness feet.	MATERIALS.	
354	Yellow clay above, with calcareous concretions. Then alternating strata of blue clay and sand; no trace of petroleum.	Port Hudson Group.	160	Yellow and blue clay, with some sand strata, soaked with petroleum.	
96	Sand, with flakes of clay. Sand, with coarse gravel. Sandy pipe clay.	Orange Sand Group.	173	Gray and yellow sand, with gravel, especially below. All soaked with petroleum.	
		Vicksburg Group.	10	Blue laminated clay, with a sandstone ledge.	
			40	Blue sandy limestone, in loose, rounded fragments rolling in. Stream of water with gas and petroleum.	
		Cretaceous Formation.	60	White, crystalline, crumbling limestone. Tube driven through.	
			100	Pure crystalline sulphur. Strong stream of sulphur water from surface.	
			147	Alternating strata of gypsum and sulphur, as above; about 35 feet of sulphur in all.	
			540	Gypsum—dense, granular, or coarsely crystalline, white or gray—very pure.	

The two bores named in the foregoing profile, are 700 yards apart east and west; Kirkman's well being also on an island in the marsh, on which, however, no petroleum springs existed.

THE QUATERNARY STRATA.

The most striking point at first sight, is the great difference in the respective thickness of the two quaternary groups, the Port Hudson and orange sand series. The latter had not been passed through in Kirkman's well below the depths at which in the other bore the great sulphur bed was struck. This must not be interpreted as showing that the latter is not horizontally continuous, but simply as a proof that before the deposition of the orange sand, the surface of the older formations was as deeply eroded here into hills and valleys, as is the case elsewhere, and that the surface of

the orange sand itself had in its turn been denuded in a similar way, before the marsh, swamp and estuary deposits of the Port Hudson series began to be formed. To effect this, that surface now (454 feet below tide) must, of course, have been above the sea, level; and since in east Louisiana we find the later quaternary deposits as much as 450 feet above the present tide level, it is clear that a depression of at least 900 feet must have occurred after the drift period, followed by a re-elevation to about half that amount. The Gulf coast has therefore fully participated in the oscillations of level reported from more northerly latitudes, during the same epoch, and to a similar (minimum) extent; and the wide distribution of the southern stratified drift or orange sand, probably from the Susquehannah to the Colorado of Texas, and northwestward to the Llano Estacado, suggests the universality and close connection of the great events which produced it as well as the glacier drift of the North.

TERTIARY STRATA.

The quaternary strata, though soaked with petroleum, evidently bears no genetic relation to it. The blue, nodular limestone is manifestly the petroleum bearing formation, which, I have every reason to believe, identical with the Vicksburg tertiary, as exhibited at Sabine Town and elsewhere. The inconsiderable thickness of this formation, as well as the fact, already referred to, that it is denuded into valleys and ridges, one of which this bore happened to strike, renders it unlikely that the supply of oil will be found large or lasting at any one point. It certainly has not appeared here in paying quantities, however great the rush of water and gas were at first. They are now tubed out.

CRETACEOUS STRATA.

The underlying white, crumbling limestone is not represented in any of the tertiary rocks underlying the Vicksburg series, but is undistinguishable from the rock of the saline cretaceous outliers in north Louisiana. Its close connection with the sulphur bed is evidenced by the fact that fragments of it have been brought up with sulphur regularly crystalized in its cavities. At the same time, we find the sulphur interstratified with gypsum, which, in its turn, is known to accompany the limestone of north Louisiana. The whole, therefore, belongs, doubtless, to one and the same age--the cretace-

ous--and the great gypsum bed at once suggests the connection with the great gypsum formation of the upper Red river and the Llano Estacado, which are known to possess a slight southeast dip.

THE SALT BED OF PETITE ANSE.

Knowing that the cretaceous formation underlies the coast of Calcasieu at a depth of about four hundred feet, and that a cretaceous ridge extends coastward as far as St. Landry, it requires but little stretch of imagination to suspect that the rocksalt mass of Petite Anse is but another cretaceous summit of that ridge. In that case, it is probable that the mass is of greater thickness than has yet been suspected, and that gypsum, and perhaps the sulphur bed, will be found beneath it.

As regards the latter deposit, its importance can hardly be overestimated, when we consider the primary importance of sulphuric acid to most modern manufactures. Its price regulates that of many of our every day necessities—its quality influences theirs. In view of the disadvantages under which the production of Sicilian sulphur labors, much impure pyrites is used in the production of sulphuric acid, seriously injuring the quality of the product. The Calcasieu sulphur is almost chemically pure; its supply is apparently unlimited. It will require considerable capital and the best of engineering skill to render the deposit available; but this once accomplished, its working cannot fail to be highly remunerative, the more, as its very gangue—gypsum—is itself an article of no mean value, so that nothing will be brought up from the shaft but marketable material.

I sincerely hope that the reconnoissance, whose results I have thus hastily sketched, will serve as an earnest and stimulus to the speedy organization of a thorough and detailed geological, agricultural, and topographical survey, such as the interests of the State imperatively demand. The effectual and speedy development of its resources require that these should be made known, from a source above suspicion, not only for the benefit of the actual inhabitants, but in order that capital and population may flow with confidence into its borders. Mere general declarations as to the advantages of the country cannot accomplish this; the capitalist, the immigrant, want facts, with reliable and detailed information, before risking their fortunes. Louisiana, though one of the earliest colonies of the

continent, is as yet one of the few States concerning whose aspect and resources no reliable information is generally accessible, and whose climatic and physical peculiarities are grossly misunderstood. The State owes its citizens the performance of a work which cannot be successfully carried out by private enterprise, or voluntary associated effort, such as originated the present expedition. The highest degree of competency, and best efforts of the gentlemen* now prosecuting the work during a few spare months of the year, cannot, within any reasonable period, accomplish the task, which the best interests of the State require should be done at once, and most thoroughly.

ART. V.—STEAM DREDGING IN OUR RIVERS.

The deep interest taken in the improvement of the Mississippi invests every work of the same character with value. We perfectly accord with the New Orleans Convention in submitting to the National Government the choice among the various modes of removing the Balize obstructions. The variety of plans proposed, the zeal with which the advocates maintain the special excellence of each, proves that the Mississippi river and the geological formations at its mouth are peculiar. The law of its improvement is not that of any other *embouchure*. It requires to be studied with experimental science. We know intimately gentlemen of high character and ability who respectively advocate improvement of the Mississippi by concentration of current, by canalization, by dredging, and by lighterage. Each will point out some particular in the idiosyncrasy of the stream which makes any other plan than his own inapplicable. Each, in his turn, encounters some physical difficulty which embarrasses the adoption of his favorite idea.

We propose, therefore, to give some calculations, with the results of some practical experiments, which are to be, and have been, made in some of our principal outlets of the Mississippi, Mobile Bay, and the Savannah river.

THE BARS AT THE MOUTH OF THE MISSISSIPPI.

An expedition was recently dispatched by Col. Casey, the Collector of the port of New Orleans, for the purpose of enabling the men of

*Professors Hopkins and Locket, of the State Seminary at Alexandria.

business and of science to inspect for themselves the state of navigation at those outlets, as well as the means employed by the Government to improve it. Their report will be very interesting to our up-river readers, and we employ for the present an extract from the press report. It will be found very important as to three propositions: 1. A comparison between the Southwest and l'Outre passes. 2. A precise description of the Government dredge, the Essayons, employed in deepening the channel. 3. The improvement effected by the Government enterprise.—[ED. REVIEW.]

The Southwest Pass was first examined. The New Orleans *Republican's* reporter says:

As there have been many conflicting statements concerning the comparative merits of the two principal outlets—Southwest Pass and Pass-a-l'Outre—as well as the actual depth of water to be found upon either, at high, low or mean tide, it was finally decided by Collector Casey to invite a party of gentlemen, representing three of our most important and influential organizations, to proceed to the bars and make personal inspection.

In pursuance of this intent, Captain Freeman, of the revenue cutter *Wilderness*, was requested to have his ship in readiness to take the party to the passes.

Accordingly at half-past nine o'clock, on Thursday morning, the cutter left the wharf at the foot of Jackson street, with the following gentlemen composing the expedition:

P. F. Herwig, Special Deputy Collector, representing the Customhouse.

G. L. Laughland and H. Bonnabel, representing the Chamber of Commerce.

John Roy, J. B. Knight, and Dr. G. W. Avery, representing the Academy of Sciences.

Captain Sheldon, who has for many years been connected with the towing business, and has a long experience with the lower river, was also on board.

Upon arriving at Pilot Town, a pilot was taken on board to show us the best possible channel out to sea. At the time the water was at low tide—within about three inches of its lowest stage. The lead was cast as the cutter steamed slowly out, and the result showed the following depths of water. We only note the variations. There were many plunges of the lead made with no change in the result. Our figures represent feet: 30, 19½, 19, 18, 19, 18, 19, 18, large, 18, 18 large, 17½, 18, 18 scant, 17½, 17, 16, 15½, 17, 16, 17, 15, 17, 17½, 16, 18 large, 15, 16, 14, 29.

The fact that but fourteen feet depth was found, was accounted for, by the river men, in the existence of "lumps," which occasionally appear in the channel, remain for a short time, and finally disappear. On returning to Pilot Station, the sounding was repeated, and this time showed a minimum depth of fifteen feet, which was only found in one place.

We learn that the ship *St. James*, drawing seventeen and a half feet water, was towed to sea over this bar on Tuesday, but she was drawing much more water, probably a foot more, than there was in the channel. The power of the tugs was sufficient, however, to overcome the resistance of the bottom, which is soft and yielding. Probably seventeen feet of water may be depended on at Southwest Pass, or at least ships drawing that much can be taken over at high tide without great difficulty or danger of detention. We heard reports at the Pass of there being eighteen feet five inches on the bar, but saw nothing in the soundings, under the direction of a pilot anxious to make the best showing possible, to sustain the report.

On Friday morning, the cutter steamed around to Pass-a-l'Outre by the outside route. The sea was unusually calm, yet the slight swell, of which at no time, we believe, is the Gulf entirely free, deprived several of the party of the pleasure of joining Captain Freeman at the excellent breakfast he provided. Most of the gentlemen attempted to excuse themselves on the plea that it was earlier than

they were in the habit of eating, but the plea was received with evident discredit.

Arrived at Pass-a-l'Outre, hailed the ship *Lizzie Moses*—having just crossed the bar. The captain informed us that the *Lizzie* was drawing eighteen feet three inches : that in attempting to cross on Thursday she got aground, but the high tide of the morning floated her off, and she came over handsomely.

The United States dredge boat, *Essayons*, Lieutenant Payne, commanding, was lying a short distance from the bar. Accepting the polite invitation of Lieutenant Payne, the excursionists repaired on board the *Essayons*, and made a minute examination of her machinery, and the principles upon which her dredge is worked. We found her an entirely different craft from what previous accounts of her had led us to expect. She is a ship of about 650 tons burden, with a screw propeller at each end. The stern screw is used for propelling the boat entirely, while that at the bow is used as a dredge. She is driven by three ponderous oscillating engines, two forward and one aft. Each engine is of four hundred horse power, thus giving her a total propulsive force equal to twelve hundred horses. The dimensions of her cylinders are forty inches in diameter, with forty-eight inches stroke. The forward shaft is eleven and one-half inches, and the stern shaft ten inches in diameter.

The ship is provided with water tanks and pumps, by means of which she can be let down in the water to a depth of eighteen feet or lightened up to twelve or thirteen. While dredging she usually moves bows on, although it is thought she performs equally well while backing. After a long examination of this ship, and witnessing her perform, we concur with our correspondent, Captain Palmer, of Stonington, Connecticut, who wrote us some time ago that she was worked upon the correct principle, and with little modification would, no doubt, prove to be a success. There is an obvious improvement now needed, of which Lieut. Payne is fully sensible. This officer belongs to the United States Engineer Corps, and is, beyond doubt, a very able, faithful and valuable man for the peculiar duty in which he is engaged. His whole time and attention are given to the work in hand, and he manifests as much anxiety for the success of his undertaking as he could were all the benefits to come solely to himself.

Upon returning, the channel at Pass-a-l'Outre was carefully sounded, the ship steaming up at a very slow rate. The tide was at about the same stage as that at Southwest Pass the night before. The shoalest water found was sixteen and a half feet. The most careful examinations and impartial estimates appeared to satisfy the party that there is, at Pass-a-l'Outre, thirteen inches more water than at Southwest Pass. The bar at the latter is considerably wider, while the bottom is not so soft and yielding.

The *George Cromwell*, which left for New York yesterday, went to sea through Pass-a-l'Outre, and the pilots are looking for the *George Washington*, due to-day, by that channel. In fact, the attention of masters of large ships, bound to or from the east, has recently been turned to the advantages of this pass. There are many causes assigned for the decided improvement recently existing in this important outlet. We incline to the opinion that, when all the effects are properly and carefully traced to their causes, the *Essayons* and her commander will come in for a large share of the credit.

The following is a list of the officers of the *Essayons* : D. W. Payne, First Lieutenant, United States Corps of Engineers, commanding ; W. H. Putman, Master ; Charles H. Elwell, First Officer ; Edward Marsland, Chief Engineer.

Thus far this application of the principle that the Government must find the money and choose the plan to deepen the river goes on well. It is a continuous business, and the Engineer Department has time and means to make every experiment. Nothing can exonerate the Government from its obligation to deepen, and keep deep, the outlet to the Mississippi, except complete success. The good effect of this system has been shown in the improvement of the

upper river rapids. The duty and pride of the Engineer Department combine to give assurance of perseverance to a good result. In considering the proposed improvements in the dredge boat, we may be allowed to express the hope that any new boat, or extensive repairs, may be made in the ship yards and workshops of the Mississippi and its tributaries.

We also add, as very interesting to our Western readers, an able report on dredging in Mobile Bay, from the pen of the most eminent practical hydraulist in the South. It will be seen that he is incredulous of success in removing the bars of tidal and alluvial rivers by means of dredging. However we may differ with him on that subject, his estimates of the amount of work to be done is mathematically correct, and shows the magnitude of the enterprise at the mouth of the Mississippi, to which the United States is committed.

REPORT ON DREDGING IN MOBILE BAY.

To the Joint Committee of the Aldermen and Common Council of the City of Mobile:

In all the statements regarding the operations of dredging that I have seen, I notice a great want of precision and accuracy in the details necessary to enable the public to form a correct estimate of the assertions laid before it. Unless full and complete data, and all the details connected with the works, are given, it is impossible to calculate, either the time necessary to complete the work, or the money it will cost. Loose data and imperfect details, from which no legitimate conclusions can be drawn, are too often presented, with the opinions of individuals who never studied the science of hydraulics, and with the aid of bold assertions, which are set forth with as confident authority as if they were scientific maxims; thereby leading the public astray.

In all statements of performances of a steam dredge of certain horse power, besides quantity of matter raised in a given time, the height to which it is raised should be stated; otherwise, no correct estimate can be formed as to its working capacity.

A steam dredge of twenty-five horse power, working to a depth of twenty feet, can raise, on an average, three cubic yards per horse power per hour; the same dredge working to a depth of thirteen feet, can raise five cubic yards per horse power per hour; it can, therefore, raise one hundred and twenty-five cubic yards per hour, or one thousand cubic yards per day, of eight working hours; and, employed at an average of two hundred days during the year, the quantity of matter raised during that time would be two hundred thousand cubic yards.

The effective power of a steam dredge depends upon its proper construction, its solidity, and the manner in which it is kept in repair. The numbers of dredges required to perform a certain work in one year can be ascertained by the number of cubic yards to be excavated in the formation of a canal *in still water*; but this rule is not applicable to the Bay of Mobile; where the river is continually bringing down, during the ebb, and at all hours when the flood-tide is not coming up, the very same kind of material which is to be excavated and removed, and for which the holes made by the dredge will serve as repositories; and besides, the waves during a storm or any unsettled weather, always have a tendency to restore the bottom to its former level provided the fall of the surface of water and quantity of back-water on the ebb remain the same. From this we may infer that dredging operations in Mobile Bay would be like the labor of Sisyphus, or that of the Danaids, in ancient mythology.

I will now, for the information of the committee, lay before it an estimate of the amount of excavation that would be necessary, according to the depth that

may be required, for the improvement of the Bay of Mobile. The calculations are made in accordance with the depth of water, and the distances in the proposed line of channel, as laid down in the map of 1860. I make this statement, that the members may be able to form some proximate idea of the amount of excavation necessary and the money it will cost, provided dredging be used for the purpose of deepening the present circuitous channel. It must be remembered, however, that these calculations, are made, necessarily, for *still water*, where there is *no filling up*. Because there can be no accurate estimate made of either time, labor, or cost in the excavation of a channel subject to the action of flood and ebb tides, and the perpetual flow, day and night, of the waters of a large river; besides the atmospheric disturbances in the bay which are certain to occur at various seasons of the year. As there are no means of calculating the amount of filling up that would be constantly going on during the work, my estimate must, necessarily, fall short of the amount of time and labor that would be actually required to complete the work, as well as the money it would cost.

The amount of matter to be removed in excavating a channel three hundred feet wide at the bottom, in accordance with the following depths, may be stated in round numbers:

Channel 13 feet deep.....	2,000,000 cubic yards.
.. 14 feet deep.....	3,500,000
.. 15 feet deep.....	5,000,000
.. 20 feet deep.....	14,000,000

The cost of excavation would be as follows:

2,000,000 cubic yards, at 40 cents per cubic yard.....	\$ 800,000
3,500,000 43	1,505,000
5,000,000 46	2,346,000
14,000,000 60	8,400,000

The cost of a steam dredge of twenty-five horse power, with the necessary scows, boats, etc., estimated at \$25,000, we are enabled to calculate how many dredges may be necessary in each of these cases to accomplish the work in one year, and their cost:

2,000,000	= 10 dredges at \$25,000=.....	\$ 250,000
200,000		
3,500,000	= 19 dredges at \$25,000=.....	\$ 475,000
188,000		
5,000,000	= 29 dredges at \$25,000=.....	\$ 725,000
172,000		
14,000,000	= 117 dredges at \$25,000=.....	\$2,925,000
120,000		

The above estimate of the amount of excavation to be done, and the money it would cost, is accurate, so far as it applies to dredging in *still water* where there is *no filling up*. But, as I remarked before, the constant filling up, night and day, that would necessarily take place during the work in a channel like that through Mobile Bay, subject to the influence of the flow of the river, the flood and ebb tides, and the changes of the weather, would make the actual work required to be done, and the amount of money it would cost, much greater; how much greater, it is impossible to estimate, because there are no means of making an accurate calculation of the filling up. There is no getting around this fact—that the tendency of the currents, tides, and weather in Mobile Bay, in its present condition, is to fill up the channel excavated by the dredge.

From the above, the members of the committee may form some idea of the amount of work and the cost involved, in the dredging that would be necessary to secure for Mobile such a capacity for navigation as her commerce requires, her position entitles her to, and her people desire; that is, a free, short and safe passage to the wharves for vessels of the largest class. But, they must always bear in mind, that great and most desirable as such an advantage would be—if, indeed, it were possible to secure it by mere dredging—it would only be temporary; for as long

as the causes which led to the formation of these bars and shoals are permitted to continue, the river will continue to do what it did before; bring down the material, and deposit it in the Bay. Let the dredge take it away, still it will do the same work over again, and deposit fresh detritus in the place of that which has been removed. It cannot possibly be otherwise; and so fully has this been established by the experience of the most eminent hydraulic engineers that, in soft, muddy shoals or bars, in the mouth of tidal rivers, the use of a dredge is declared to be utterly worthless for any permanent effect.

The channel of a tidal river of movable bottom, regulated in accordance with the rules laid down by eminent engineers, with concentrated waters, directed and assisted by art, will do all the work expected from the dredge. The current of a large river, properly regulated, when acting with the full force of its scouring power during the ebb tide, forms a better and more perfect dredge than any ever invented by man. It does not make a hole here to-day, and there to-morrow. It works in a straight line, and works simultaneously along the whole line. It stops not for meal-time, nor for sleep, nor for the Sabbath, but works every hour of night and day, from year's end to year's end; and, better than all, it never wears out. Let *that dredge* be once put *judiciously* to use, and the water will do the work that God intended it should do, when He first set it in motion; it will clear out a channel for itself.

ALBERT STEIN.

SAVANNAH RIVER IMPROVEMENT.

We have received from Col. Edward Anderson, Mayor of Savannah, his report on the progress and success of the corporate undertaking to dredge the obstructions from the Savannah river at and near the city. From this we shall make some extracts, which, in the main, are very instructive, though we expressly abstain from adopting them as entirely applicable to the improvement of the Mississippi at its mouth by similar means. The designation of the particular plan for this work should be left where the Convention placed it: with the National Government, upon which rests the responsibility and the expense of performing the service. In reading the extracts which follow, it will be seen that the judicious authorities of Savannah propose to remove every obstruction to the export and import trade, not only by deepening the river, but by improving the wharves and by bringing the rail to the vessel. We add the extracts:

The following expenditures have been made from the City Treasury in furtherance of this work.

Paid Commissioners of Pilotage, for Harbor Master's fees collected..	\$ 4,628 25
Paid for freights and passage tax collected.....	16,531 43
Paid H. F. Willink for removing wreck of Isondiga.....	100 00

Total.....	\$21,259 68
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The operations on the river, under the auspices of the Commissioners of Pilotage, have progressed steadily during the past year. I am indebted to Capt. J. S. Kennard, Superintendent of Dredging, for a report of work done under his direction.

At the close of the Mayor's report for October, 1867, the dredge was employed excavating a channel near the gap in the obstructions, four miles below the city, in the vicinity of Elba Island. This work was completed on the 16th of the month, and a passage-way dredged out of the following dimensions: Length,

four hundred yards; depth, from thirteen to fifteen feet at low water; width, one hundred and twenty-five feet. The average depth excavated was 4 25-100 feet, composed of mud and a substratum of stiff black and blueish clay.

About thirty days' work was done on the sand shoal opposite Marsh Island when the scene of operations was changed, and the vessels moved up to the head of King's Island, where the "cross tides" met and deflected the water into Back river. To remedy this difficulty, and, if possible, to divert the stream fully into the Georgia channel, it was decided to cut off a projecting point of land, which, by its peculiar formation, conducted the volume of the stream from the south bank of the river directly across towards the Carolina shore, and thus down into Back river. It was determined, in removing this projection, to deposit the earth taken from it over against the sand flat in the vicinity of the timber jetty, and to dredge out a channel of sufficient depth to draw the water from its accustomed course through this excavation, and thence along the line of the mainland into the Savannah river proper. This has been in a great measure accomplished, the work having been completed on the 9th of April last. As a result of this operation a large quantity of the water which formerly passed down through the "cross tides" into Back river, now flows on past the city on its way to the ocean. This change is palpable to any one who has observed or has had practical experience in the set and velocity of the currents at this point, before and since the dredging was completed. Raftsmen, who in times past found it difficult to keep their timber from being swept across into Back river, now drift down without difficulty to the city; and where before there was a dead eddy, caused by the point of land jutting into the stream, there is now a current of considerable strength. The deflecting tongue of land, thirty feet of which was above water, was cut squarely off, and in its stead a channel has been dug down of from fourteen to sixteen feet in depth. Through this new channel the current rushes with the same velocity which formerly bore it through the cross tides into Back river. The following are the dimensions of the cut excavated: Length, three hundred and ninety yards; width, from thirty to one hundred and forty feet; depth, from fourteen to sixteen and a half feet.

The dredging here was at times much impeded by cypress stumps, and knees, some of which were of great bulk, requiring all the power of the engine to detach their roots from the ground. They were found from thirty to one hundred feet from the margin of the shore, and generally from twelve to fourteen feet below low water mark. From their upright position, and the tenacity of their fixture in the earth, it is evident they were not deposited, but grew there, thus demonstrating an interesting feature of change in the conformation of our river, and evidencing the fact that where now there exists a deep channel was at one time a portion of the forest. The effect of turning an increased volume of water into front river has strengthened the velocity of the current, and has sensibly deepened the sand shoal opposite Marsh Island. The water along the wharves of the city has also been deepened.

In consequence of the large number of vessels arriving in ballast in the winter months and the difficulty of discharging the same in a suitable place of deposit, Council in March last voted an appropriation of six hundred dollars to be expended in the construction of a wharf on the opposite side of the river, which would not only relieve the vessels of their difficulty and be a source of revenue to the city in the ordinary rate of wharfage charged, but at the same time would serve to strengthen the bulkhead closing the channel between Hutchinson's and Fig Islands by dumping the ballast on the inside of the same. To facilitate this arrangement, the dredge was employed for a short time in deepening a channel to and alongside of this wharf. The excavation has not yet been fully perfected, as it was deemed of more immediate importance to cut away and deepen that portion of the "Garden Bank" trenching upon the ship channel. This bank is about eight hundred and fifty yards long, with a depth of water on its southern edge varying from eight to ten feet. The space between it and the wharves is very narrow, and vessels passing to and from the city often ground here. The work was commenced on the 21st of April last and continued steadily until the 24th of August, at which time a sufficient width and depth had been attained to enable ships, with careful handling, to pass without risk of detention. In the prosecution of this improvement, a heavy sunken wreck was

raised from the channel of the river opposite Willink's Ship Yard, occupying but two days in its removal. It proved to be a very large and strongly built flat, eighty feet long by seven feet depth, strengthened by stout oak knees firmly bolted to the sides and bottom. The side planking was additionally secured to the keelsons by inch iron rods running edgewise through them. This flat was torn to pieces and raised in fragments, the bucket of the dredge grappling and wrenching from its fastenings an entire side at a time. In excavating opposite Demund's Cotton Press another sunken flat was disjointed and brought to the surface in the same manner. The work along the "Garden Bank" has been temporarily suspended in order to resume operations on the channel at the "wrecks," the upper or western edge of which had somewhat decreased in depth in consequence of the slight angle made by the ebb tide in entering it, and by the passage of steamers across the entrance whenever the flood tide gave them water sufficient to shorten the turn. The sand has thus been forced by their paddle wheels and propellers into the mouth of the cut. In order to remedy any further filling up from like causes in the future, the north corner of the dredged channel is now being removed, forming a funnel shaped opening for the current to sweep into. The tide will henceforward flow evenly into this funnel, and vessels will enter and leave it fairly without deviating from their direct course.

Thirteen months have elapsed since the channel at the "wrecks" was dredged, and though the excavation was made through a bed of shifting sand, it is gratifying to know that the depth remained unimpaired except for a few yards on its western and northern extremity. The slight filling in at this point has already been remarked upon and remedied. The results thus far attained by the dredging of the river have been in every respect satisfactory, and are apparent in the increased prosperity of the port, and in the facility of access to vessels of large draft, which in former years were subjected to lightering and delay. A ship of seventeen hundred tons, with a capacity for four thousand five hundred bales of cotton, is now loading at Demund's Press. This fine vessel, (the Emerald Isle,) the largest, perhaps, that has ever been up to our wharves, came up from sea to her berth under sail, without the aid of a steaming. Since the completion of the several channels, no vessel that could reach them has been delayed from want of water to pass through them; whereas, before these shoals were dredged out, ships, comparatively of light draft, were compelled to wait for the top of high tide to get over the "wrecks."

The limited amount of wharf front to the city, will in a very short time necessitate an increased accommodation to meet the wants of our growing commerce. This can be attained by an extension of the line of wharves below Willink's Ship Yard, where the water is deep, or by means of the powerful dredge machine now in the river, widening, deepening and wharfing in the Ogeechee Canal from the lock to the Central Railroad bridge, and converting it into a basin for ships. The distance between the two points named is 3,078 feet on either bank, amounting to 6,156 feet in all, or an equivalent of nearly one mile and a quarter of additional wharf accommodation to the city. The present width of the canal is one hundred and thirty feet, which, without difficulty, could be increased to one hundred and eighty feet, or two hundred feet, and deepened to any extent that might be deemed desirable. The project is suggested for the consideration of capitalists. Judiciously carried out, and with a line of rail track on either side of the basin running up to the Rail Road bridge from the river, it would afford an admirable location for the cotton presses, and, doubtless, prove a profitable investment to all parties undertaking it, as well as an essential accommodation to the prospective business interests of Savannah.

ART. VI.—BRITISH HONDURAS.*

ITS HISTORY, TRADE, AND NATURAL RESOURCES.

BY MR. CHIEF JUSTICE TEMPLE.

In Honduras there is a plentiful supply and a great variety of that animal which first lectured on philosophy—I mean the serpent. Of these reptiles, the number which are venomous is much less than is generally supposed. The snake, possessing no defensive weapon, and having no means by which he can speedily escape from his enemies, is more easily captured than any other animal. But a few of them, although not able to fly from, or resist attacks, possess the power of injecting into the veins, and mingling with the blood, a deadly venom, which in a few hours destroys life. I say a few of them possess this power; but as we are not certain which, amongst the prodigious variety which exists, does not possess it, they are protected by a moral safeguard from the hand of man, which is the undefinable feeling of horror which every one experiences at the sight of any of those creatures. The snakes which are known to be venomous in Honduras are the rattlesnake, the tomajoff, or tomagasa, as it is sometimes called, and the coral. The bite of the two former causes death in a few hours, but that of the latter, it is said, destroys life almost instantly. There is a plant which grows in Yucatan, in Central America, in Chili, in Peru, in Columbia, indeed, in the whole of South America, which is universally known by the name of *Guaco*, or *Huaco*. This is believed and declared to be a certain remedy for snake bites. So strong is the impression of the powerful medicinal virtue possessed by guaco, that no Indian ever traverses the dark and dense forests of that part of the American continent without carrying a portion of it in his pouch. The late Dr. Francis Young, of Belize, thus describes it: “The guaco is a creeping or climbing plant, growing in moist and shady parts of the

*This article was inadvertently omitted in its proper place, but may be bound with the other numbers.

forest of Central America, and delights in the rich, black vegetable mould so abundant in intertropical forests. It is found in great vigor near the margins of springs, in shady situations, as well as along the banks of rivers. When in its growth it meets with a shrub, or any other body, it attaches itself to it by winding, in a spiral manner, round it. The leaves which have reached full maturity are about six inches in length, and of a proportionate width, and at a little distance from the leaf-stalk, are sagittated and serrated. The leaves of middle growth, as well as the young ones, are of a dark purple hue, with a tinge of green on the under surface, an appearance by which the guaco is readily distinguished from other plants of the creeping or climbing kind, which may, in other respects, strongly resemble it. The upper surface is of a green, glossy, and silky aspect, and of a velvety feel, from being covered with a short and exceedingly soft down. The taste of the leaf, stalk, and root is an intense bitter, which leaves a strong impression on the tongue, more lasting than that caused by the generality of bitters."

Dr. Dunglison, Professor of Medicine in the Jefferson Medical College of Philadelphia, in his book stiled, "New Remedies Pharmaceutically and Therapeutically Considered," thus speaks of guaco: "Many species of the genus *Eupatorium*, and of the kindred genus, *Mikania*, have been prized in various parts of America, particularly in cases of bites of serpents. This is especially the case with *Eupatorium agapana*. According to Von Martius, a quantity of bruised leaves is applied to the scarified wound, and the application of fresh leaves is renewed over and over again until the patient is freed from the dangerous symptoms, and especially from the violent suffering; at the same time, a few spoons full of the expressed juice are administered every now and then." After mentioning a number of plants belonging to the *Eupatorium*, he says: "The most important species appear to be that called in Peru *Guaco*, or *Huaco*, which is held there in high consideration, as well as in New Granda and Venezuela, not only in these cases, but in the prevention of hydrophobia; this is presumed to be the *Mikania Guaco* of Humboldt."

Very eminent botanists, whose opinions are deserving of the greatest respect, think that the virtues attributed to the gnaco and other members of the family of *serpentaria*, are purely imaginary. I am not at all qualified to argue that point with them, but the testi-

mony of an honorable, well informed and intelligent practitioner of medicine, that guaco had been by him administered with success to the human subject in cases of snake bites, is not unworthy of regard. Dr. Francis Young, the gentleman to whom I allude, treated four decided cases of this character, by the application of guaco, with perfect success. The first one was that of a mate of a vessel who had been bitten by a venomous snake which had been brought on board along with a quantity of logwood. Dr. Young says : "About eight o'clock at night the mate, while walking the deck, on which a quantity of logwood still remained, suddenly felt something bite him near the ball of the great toe. The pain was exquisite, quickly extending itself in shoots up the limb, and affected his side. There was a giddiness of the head and acute pain in the pit of the stomach and sickness. He was almost immediately thrown into violent convulsions, and the posterior muscles of the body became so powerfully affected with spasms as to send the head and shoulders backward to such a degree as to resemble a severe case of tetanus. When my brother, who was hastily sent for, arrived on board, he immediately concluded it was a case of snake bite, and was in the act of sending ashore for the guaco, a quantity of which, by good chance, he had, when I arrived with it, having heard of the mishap. At this moment a very violent fit of an epileptic appearance, with violent spasms of the head, of the kind mentioned above (although greatly aggravated) took place. These spasms had appeared about every ten minutes. We hastily descended to the cabin, and as soon as the power of swallowing returned, administered a wineglass full of very strong tincture of the guaco. We waited in extreme anxiety to see the result of this, our first essay, in grappling with a formidable enemy, hitherto accounted invincible, with a power new to us, indeed, but the fame of which was widely spread. It may well be imagined how great was the intensity of our impatience in awaiting the lapse of the usual period intervening between the convulsive attacks. Ten, twenty, thirty and forty minutes over without any return of the convulsions. The pulse was strong, full, and accelerated ; there was much pain in the head, with somewhat of drowsiness, and a profuse flow of perspiration. We left the patient, ordering the same dose to be given in about an hour and a half after the first dose, should no convulsions appear, but immediately on a threatening

of such. About a quarter of an hour after we left, a slight convulsive attack came on, when the dose was repeated. As we had left orders to be sent for should matters again become unfavorable, we were agreeably surprised to pass the night without being called, the last attack being so slight as not to appear to his father sufficiently serious to cause him to disturb us, more especially as he was satisfied he had a sufficient remedy with him. The young man, in a day or two, was quite well. I may here observe that the snake was neither seen before nor found on board afterwards, it having, in all probability, slipped over the side of the vessel after inflicting the wound. No one, however, ever expressed a doubt as to the identity of the bite with the snake which had so cleverly evaded the boat's crew.

"The other three cases occurred to two Indians and a Carib, and were treated in the same manner. In all, after giving guaco, the pulse became exceedingly strong and full, with intense headache and flushed countenance, followed, after a time, with a profuse flow of perspiration. These symptoms would doubtless have led me to the free use of the lancet, had I not previously reflected well on the treatment I should adopt. A strong tincture was used and given by the wineglass full. It might be said that the quantity of spirits would of itself account for all the symptoms which manifested themselves after the exhibition of the guaco, but when it is mentioned that the whole of the last mentioned sufferers were in the almost daily use of drinking large quantities of spirituous liquors, this surmise becomes dissipated. I have not a doubt upon my own mind that the symptoms were produced by the guaco, and as the necessary result of an internal exhibition, in whatever form given, provided the dose be large and given with a bold hand, and that previous depletion, either by the lancet or otherwise, had not preceded its use. I am, moreover, of the opinion that the entire success of the treatment arose from the action of the guaco on the body, not having been interfered with, or in any way modified, by a random recourse to the lancet, without reflecting that its use might altogether destroy the efficacy of the peculiar power admitted to reside in this singular plant. The guaco is frequently used in intermittent fever, instead of bark or quinine, and as a good stomachic in dyspeptic or debilitated state of the intestinal canal."

George Byam, the author of "Wild Life in Central America," after telling us that a friend with whom he was talking near the coast one day, informed him of the extraordinary virtues of the guaco in the cases of bites by venomous reptiles, says "he was not then aware how soon his remedy was to be tested. Seeing one of the Indians attached to his plantation idling about, he told him to go and remove some loose timber that was lying near an outhouse, and put it under shelter. The man came back in a few minutes, looking more like a blue Indian than a red one, and having only time to say he had been stung, dropped down in a sort of fit. My friend said it must have been done by a snake, but a bottle of the tincture was quickly brought out and about a wineglass full poured down his throat; he was then laid on a bench and covered with a poncho, and in a few minutes he burst out into a profuse perspiration and fell asleep. 'All right,' said my friend, 'he is all right now,' and several men having collected, we started off to kill the snake that was supposed to have bit him. On turning over the piece of wood he had been raising, we found, not a snake, but the largest and blackest looking scorpion any of us had ever seen before. Having secured it alive, we brought it into the house and put it under a bell glass to observe it; it must have been six inches long, and had claws as large as those of a small fresh water crayfish. The man awoke in a couple of hours quite well, but rather weak, from the violent perspiration occasioned by the dose." Guaco is also said to be a remedy for cholera.

Several months ago I stated in a letter published in the *Society's Journal*, that there was an odoriferous substance in the axillary glands and under the jaw of the alligator, which might be used as a substitute for musk, and thereby become a valuable article of commerce. In going up or down the rivers of Honduras you are always warned of the presence of an alligator by a strong, sometimes almost overpowering, smell of musk. Two hundred years ago the musk of the alligator of Yucatan and Honduras was extracted from that animal. Capt. Dampier says: "The flesh smells very strong of musk, especially four kernels, which are always found about them, two of which grow in the groin, near each thigh, the other two at the breast, one under each fore leg, and about the bigness of a pullet's egg; therefore, when we kill an alligator, we take out these, and having dried them, wear them in our hats for a perfume."

An extract from the "Official and Descriptive Report of the Madras Exhibition of 1855," shows that the musk of the alligator is known and appreciated in the East Indies. It is as follows : "The largest animal found in the backwaters is the alligator. This vicious animal is sometimes very destructive to those who travel in common canoes, and is found in the northern districts (of Travancore) measuring from twenty to thirty feet in length, and from five to eight feet in girth and ten feet in circumference. Musk is taken from the glands of the jaw, which is very fine if well prepared and separated from the flesh, otherwise it will give a very bad smell." But the presence of this famous perfume does not alone constitute the value of the alligator. The teeth of that animal are from four to six inches in length, and are very white and hard. There is no doubt that they might be applied to many useful and ornamental purposes. * But there is still another article of no slight importance, which may be extracted from that amphibious brute. The tail of an alligator, measuring twelve feet in length, when boiled down, gives from sixty to eighty pounds of excellent oil. These various materials render that animal much more valuable than it was supposed to be in the days of Romeo, when "starved apothecaries, to show that learning and not beef was their aliment, hung up in their 'meagre repositories' alligators stuffed." The alligator of the New World is a timid animal on land, but in the water, he will always attack man. It is not able to bite off a leg, as the shark does, not having the incisors which that fish possesses. He has only the canine and molar teeth, and consequently can only tear his prey. Two of remarkable length grow at the end of the under jaw, in the smallest part. There are two holes in the upper jaw to receive them, otherwise he would not be able to shut his mouth. It generally comes on shore at night, and attracts to him pigs, and dogs, and goats by an exact imitation of the respective cries of those animals.

The queen conch abounds in the shallow waters which cover the numerous coral reefs near the coast of Honduras. The shell of the queen conch is extensively used for the manufacture of cameos. In a paper read to this Society in April, 1847, by J. E. Gray, Esq., it was stated that in the year 1846, 12,000 of these shells, valued at £725, or 1s. 2½d. each, were sold in France for

this purpose. From a queen conch, one good sized cameo brooch can be made, and several shirt studs. The Queen conch frequently contains a pearl, which is extremely beautiful. It is sometimes white, and sometimes of a light pink color. The latter is the most esteemed.

ART. VII.—REPORT ON COTTON.

BY B. F. NOURSE, U. S. COMMISSIONER AT PARIS, 1867.

Extract.

THE PRESENT CONDITION OF THE COTTON CULTURE IN THE UNITED STATES.

Since the first part of this report was prepared, in the summer of 1857, nearly eighteen months have passed, which cover one of the most interesting and instructive periods in the history of the culture of cotton in America.

For a better comprehension of the important facts, and the lesson which they convey, it is well to recur briefly to some points set forth in that first report, which, having stated the unfavorable circumstances attending the cotton trade in the latter half of the year 1867, predicted a further decline in prices in Liverpool "to or below 7d. per pound for fair Dhollera, (Surat,) and 9d. per pound for middling New Orleans, which last would be equivalent to 20 cents in New York." It also stated that this price in New York "would return to the planter only 16 cents on the plantation," and that "if the price shall be only 16 cents in New York, or 12 cents to the planter, he cannot pay his hired laborers with the entire net proceeds." The event gave singular confirmation to the anticipations thus expressed. Under the depressing influences then in force, cotton declined in price until December, 1867, when fair Dhollera was sold in Liverpool at 5½d., and middling New Orleans was sold there at 7½d., and in New York at 16 cents per pound. The first half of the cotton crop of the United States for 1867-68 was sold by the planters for less than its cost of production.

The crop of that year was much less in its yield per acre than the average of crops before the war. In the Southwest it was reduced by spring overflows and other disasters, while labor was engaged at high prices for inefficient and irregular service in the greater part of the cotton growing region. The relation of employer and employed had not found its proper adjustment. Thus it happened that the second of the free-labor crops of cotton was deficient in yield for the area cultivated, and was a very costly one to the producer; yet, up to the middle of January, 1868, it was selling, as abovesd stated, for less than the average cost of its production. Then it was subject to the internal revenue tax of 2½ cents per pound; a burden too great to be borne, when cotton was selling at 10 to 13 cents, tax paid.

The production of a good crop of cotton requires the effectual preparation of the land during the fall and winter by cleaning, fencing, plowing, etc. The beginning of this work may not be deferred beyond January; yet, just then, everything seemed to conspire together for the discouragement of cotton planting in our country, and to prevent the needful preparation even for one more crop. No other available productive industry offered itself instead, and there was a widespread gloom, almost despondency, throughout the South, aggravating the discomforts of the poorer people, white and black, who in many districts lacked sufficient food and clothing.

REPEAL OF THE COTTON TAX AND ITS EFFECT.

It was at this juncture that Congress repealed the cotton tax. The expediency and necessity of that legislation had been stated by this committee in the first part of their report, and they find eminent satisfaction in presenting now a statement of its immediate effects in the development of prosperity and comfort within the cotton-growing States exceeding the most sanguine expectations.

It was the turning point. The mistake of continuing that tax would have been potent for evil and forbidding the hope of improvement, while the act for its repeal was charged with blessings and benefits, operative now and for all time, for the people of the South, indeed, but scarcely more than for the people of all other sections of the common country.

It made sure to the former the restoration of their monopoly of the cotton supply of the world, and opened the way to a rapid improvement in their condition, by the increase of wealth and development of industrial power and resources beyond precedent, if the opportunities shall be reasonably improved.

It had been argued that the repeal of the tax, as encouraging the culture of cotton, would further depress its price in the market.

It proved otherwise. The price was adjusted in the relations of the existing supply and demand. Almost coincident in time with the act of repeal, cotton began to improve in market value. This occurred early in January, and before the end of April middling New Orleans cotton was worth 33 cents in New York and 13½d. in Liverpool, an advance from December of nearly 100 per cent.

THE PLANTING IN 1868.

Meanwhile the preparation for planting was going on under the renewed encouragements given by these changes of law and of market.

Before the war, the general custom of planters was to obtain from their factors or bankers, usually the former, an advance of money, enough to obtain the year's supplies and cover the probable expenses of making the crop, to be repaid upon sales of the cotton.

The destruction of property and the losses by the war in the South had impoverished the people, and disabled, to a great extent, the whole body of planters. Two years of experiment in planting

under a new system of labor, and mainly upon money borrowed under pledge of the crop or plantation, or both, had resulted in the exhaustion of credit as well as capital. Planters without money; factors and bankers unable or unwilling any longer to supply it; and laborers needing employment to obtain supplies of the necessities of life: such was the position in January, when work began for planting the crop of 1868-69.

One other material fact, bearing upon the position of American cotton-planting as it stood in January, 1868, should be mentioned here.

The adversities of the two years preceding had fallen upon both planters and hired laborers, and had not been without their uses. The freedmen had learned that liberty did not carry the right to be idle or unfaithful, and that the coveted citizenship had its duties as well as its privileges; while the planters had been learning that the almost universal opinion expressed in the phrase "the negro will not work" (as a freeman) was a mistake, and that it was practicable to make a cotton crop with free labor if only the proper understanding could be established. Interference had in a good degree ceased, and the two parties specially interested came together under a common interest, which to one, if not both, was as imperative as necessity. Here was the beginning of the practical recognition of the true relations of labor and capital, which only need to be fully and intelligently applied throughout the South, among both races, and guided by an enlightened sense of public and private justice, to secure to the Southern States the full benefit of the superior climate, soil, and mineral and other resources with which they have been endowed by nature. These, rightly used, will bring increase of population, wealth, education, refinement; and these again will develop a strength and power impossible under the system which was displaced for this better one, the first fruits of which are now to be considered.

The sanguine hopes which attended the planting of 1866 and 1867 were all gone when the work of preparation became necessary in January, 1868. There was the one encouragement given by the act of Congress, that whatever cotton should be produced after 1867 would be exempt from all direct tax. Planters could not repeat the offers of high wages current in the previous two years. Yet the lesser wages and shares of crop which they did offer were more readily accepted and better earned by their hired people than the greater wages of those previous years. As the planting progressed, the remark came from all quarters: "The freedmen are working well."

It is to be assumed that the area of land put under preparation for cotton under the discouraging circumstances which have been described, was less than would have been planted by the same persons under more favorable conditions, and far less than the labor of the country was capable of working well. However, the price of cotton continued to advance up to May, and doubtless the better promise of the future value thus given co-operated with the in-

creased strength derived from the higher prices at which the last third of the crop of 1867-68 was sold to extend the planting to a late period in the spring.

Late planted cotton is exposed to injuries from caterpillar, early frost, etc., which are escaped by the early planted portion by reason of its more mature condition. In the States east of the Alabama river the season has been unfavorable compared with that of 1867, and the crop promises to fall short of the crop of that year by 20 per cent. In the Southwest, on the contrary, the season has been more propitious, and the promise is of a material increase upon the preceding crop.

THE ESTIMATED CROP 1868-69—ITS CONSEQUENCES.

The total culture of cotton from the planting of 1868 (crop of 1868-69) is estimated at 2,300,000 to 2,700,000 bales. Taken at the mean, say 2,500,000 bales, and at the average value in Southern markets now, January 1, 1869, the crop is worth \$270,000,000, and the people of the States producing it can sell from it to the value of more than \$260,000,000, after supplying their own wants, (say 90,000 bales.) Further, appropriate for use in the Northern and Western States, 950,000 bales, worth \$100,000,000, making a total of 1,040,000 bales retained for home use, and there would remain for export to foreign countries 1,450,000 bales, of currency value exceeding \$155,000,000, sufficient to supply, at gold rates, about \$115,000,000 value in foreign exchange. If to this extraordinary result be added the value of the sugar, rice, tobacco, hides, wool, naval stores and other saleable productions of the cotton-growing States, besides food crops more than enough for subsistence, and the whole be considered as the product of the industry of a people so enfeebled, poor, and disheartened only a twelve month ago, it seems marvelous indeed. And this result has been achieved by the agricultural people of the South relying upon their own resources, and incurring very little debt outside the plantation.

The agricultural interest of the South has won its independence. It matters not how the proceeds of all these crops shall be divided between the landholder and the laborer, (except as to the wisdom of future use,) so that there shall be this actual addition of wealth or buying power, that is represented in the value of productions sold above the amount paid for articles consumed: This excess is profit, and this profit is hereafter to be reckoned by hundreds of millions of dollars annually.

THE FUTURE PRODUCTION OF COTTON—PRESENT DEFICIENCY IN COTTON SUPPLIES.

The fact stands clearly demonstrated that the supply of cotton is not equal to the wants of the world. During the year ending September 30, 1868, the consumption of cotton in Europe and America exceeded the supplies brought in by about 500,000 bales, which was made good by drawing down to that extent, the stocks with which the year began. This apparent deficiency would have been reduced 100,000 to 200,000 bales if the Indian crop had come

forward as early as usual. Yet the fact of insufficient supply remains. Nor can the probable supply of the year ending September 30, 1869, be enough to prevent a similar though, perhaps, smaller demand upon the already reduced reserves, if consumption shall go on at the rate of the year past. The reserves, or stocks in mills and markets with which the year began, (October 1, 1868,) were too small to bear another such draft upon them as was made by the deficiency of last year.

It follows that consumption must be checked, and probably by the force of high prices resulting from the competition to secure the larger and better portion of the cotton in market.

The American crop of 1868-69 is moving off at the high prices thus secured. The circumstances attending the planting of the crop of 1869-70 are in many respects quite the opposite of those of last year.

There is every inducement to plant as much cotton as possible, and money is abundant from the proceeds of the crop now selling. Should the season be favorable, a considerable increase upon the yield of 1868, is to be expected. The check to be given to the consumption of cotton by its scarcity and high price this season, must reduce the supply of cotton fabrics in market, and thus induce a larger demand in the ensuing season. It may well be that, under the present very high prices, the production of cotton in all the world during the present year will overrun the consumption for a time; if so, a fall of prices will soon enlarge the latter, because cheap goods extend the markets for them. Of the present crop only about 1,250,000 bales (1,000,000 of the receipts at ports, and 250,000 bales by inland routes to the mills) have been sold by the growers, (January 1, 1869;) and it is already announced that they hold the remainder free of debt, and are seeking investment for their money. In proof of this, attention has been called to the recent considerable advance in the value of the shares in all the active and dividend paying railroads, manufactories, and banks. One of the leading cotton brokers of New York, in his circular for Europe, after noticing the facts above referred to, says: "We believe, also, that hereafter planters will market their own crops, early or late, as may appear to them most advantageous for their own interest. Their ability to do so is much greater now than before the war. Manchester spinners will do well to make a note of this."

THE PLANTING FOR THE CROP OF 1869-70, AND THE FUTURE.

Inducements to large planting will open employment to every person able and willing to work, and may renew a hurtful competition for labor, leading to excessive wages. All this, however, must be left to adjust itself under the operation of demand and supply, and further results will complete the imperfect demonstration of the past year, that cotton-growing by labor left free to assert its own price, and not burdened by unwise imposts, is cheaper and more profitable to the individual planter than planting by slave labor could be under its most favorable circumstances, while the community

will gain in wealth, and the best uses of wealth, beyond anything conceived by men of the past generations. Other countries producing cotton will also enlarge their several contributions towards the commercial supply under these high prices and demand.

At some time, probably not distant, production so stimulated will outrun consumption, and leave a surplus beyond the want of the year large enough to depress prices extremely. Following the natural law, this must lead to a larger consumption and a reduced production.

Cotton culture will be most reduced, or cease altogether, in those countries where it has been introduced or sustained only by "war prices," and will be continued, or even increased, where most favored by natural advantages. In that competition our country has everything in its favor. The strength now accumulating will sustain our cotton production through the period of depression, and show its practical monopoly re-established for supplying cotton adequate to the wants of the commercial world. It may be, again, that prices, which will be fairly remunerative here, will be too low to sustain the cotton culture of less favored countries in comparison with other pursuits.

It was written of the Southern States in 1861 :* "The present capacity of labor applicable to cotton-growing and the land now open are equal to the annual production of 5,000,000 bales. Of the rich lands within the borders of the cotton States, not one-fourth have yet been cultivated. They can be made to yield any supply of cotton that the consumption of the world shall demand, up to 20,000,000 bales, of 500 pounds each, annually. Nor will labor be wanting adequate to any progressive increase of demand for cotton. Five years ago it was held to be impossible to obtain labor to handle and pick a crop of 4,000,000 bales, yet last year a crop of 4,675,000 bales was prepared and marketed. Labor is now more effective than it was twenty years ago. * * * Such are the improvements, relieving human with brute labor, substituting the *mule and plow* for the *man and hoe* in field work, and in better implements and processes, that the produce of one man's labor is nearly equal to that of three men twenty years ago ; his labor is more easily performed, and the planter feeds, clothes, and insures but one instead of three. The crop in the field is more even in growth and in the opening of the bolls, so that each hand can pick much more in a given time than formerly. The produce per acre has increased everywhere—in the fertile lands of Mississippi, and in the worn lands of Georgia and the Carolinas ; the latter by use of fertilizers and more thorough working of the land. Nor has improvement ceased. It will continue as well in the manual operations and applications of better husbandry and more fertilizers to the soil as in more skill and more intelligence in the laborers of each successive generation, and all more systematized. * * * This being the position of cotton planting in the United States, having

*By the writer of this report.

all the conditions necessary to success—climate, cheap labor, ready access to market, and ability to sustain itself at six cents per pound, what part of the world can offer to compete with them?

"Suppose a succession of unfavorable seasons, or other contingency, shall cut down the American supply, and prices so advanced as to encourage cotton-planting in various other quarters; these, aided by high prices, prosper a few years and contribute sensibly in aid of the supply from India and the United States. The latter also enjoying the high prices, extend the culture; good seasons ensue; they make large crops—5,000,000 or 6,000,000 bales. Suddenly the world is overstocked—has on hand a stock for a year or two in advance. Inevitably, prices would fall to a range ruinously low—not enough to pay the cost of preparation for market and freights from distant points. The United States planters would still go on and wait for a turn of prices in their favor. But the planting elsewhere would die out as it has before, except where sustained by a local market, as in India and China."

True as was the statement of our superior natural advantages for cotton-growing in 1861, it is in a higher degree true now, with this remarkable difference: that in passing that "other contingency," which "cut down the American supply and advanced prices so as to encourage cotton planting in various other quarters," another and cheaper labor system has been substituted.

PAST ACCUMULATION OF WEALTH FROM THE PRODUCTION OF COTTON.

During the ten years, 1851 to 1860, the crops produced in the cotton-growing States, (cotton, sugar, tobacco, rice, etc.,) not consumed at home, left a surplus of proceeds from sales amounting to about \$1,200,000,000, an average of 120,000,000 per year, which, less the amount required to be expended beyond their borders for the comforts or luxuries of life, should have been so much added to the reproductive capital within those States. If one-half only was thus required, the other half, or \$60,000,000 per year, should have been put to profitable use.

Throughout the Southern States some internal improvement was in progress, chiefly in the form of railroads. In some States, as in Georgia, these works had been largely extended. Cheaply built and economically operated, they generally proved to be profitable investments, capable of rapidly repaying the loans incurred for their construction, which in many cases covered a great part of the cost.

A large amount of banking capital was well employed, but this, when not owned abroad, was chiefly the product of the commission and other charges upon the produce of the country, and not to any considerable extent drawn from the accumulating capital of planters.

The capital which had built the few cotton and other factories and the machine shops had also accrued chiefly from charges upon the productions of the country. What, then, was done with the \$60,000,000, or whatever other sum represented the true annual gains of agriculture in these States? The statistics of population show

pretty clearly that a great part of it was expended in importing slaves from other States.

PRESENT AND FUTURE INCREASE OF WEALTH IN THE COTTON STATES.

When considering this subject in its economical aspect only, special effects bearing upon individuals or classes are to be disregarded for the general results affecting the whole community.

Population is wealth. Money sent from Alabama to Virginia to increase the laboring power of Alabama, even by importing slaves at \$2,000 each, added in some degree to the wealth of that State. But if laborers of equal productive power could have been introduced without expending anything for them, the capital expended in the other case would have been saved, and the community would have gained its use in some other form of productive power, as in tools, machinery, or animal labor, with which to supplement and increase the value of manual labor. To the whole people, or the State, that is just the difference, in the *investment*, between importing a slave and importing a free laborer of equal capacity. There are other differences to the State, scarcely less important in an economical view, all in favor of the free laborer. Whatever the cotton producing States expended for slaves above the cost of importing an equal amount of free-labor power was twice lost to the community.

Reckoning the slaves in the cotton States prior to 1861 at 3,000,000 in number, of the average nominal value of \$500, equal to 1,000,000 full hands, at \$1500 each, we had an investment of \$1,500,000,000; and to replenish this force a large sum, much needed for other uses, was annually drawn from the gains of those States.

If, in 1860, the people, by unanimous consent, had declared the emancipation of all those slaves, whether with or without compensation to those who had owned their service, there would have been neither loss nor gain to the community, except as the change might increase or diminish the efficiency of labor or the cost of its maintenance. There would have been no "annihilation of property," for the whole labor power would have remained as before, only it would have changed owners.

Precisely so stands the effect of the decree of emancipation, made as an act of war, with this difference, however, that the laborers of both races were sadly reduced and demoralized by the incidents of the war which wrought the change. The same laboring force still exists, with the exception mentioned, and except, also, that the sudden and violent change in relations between capital and labor render further time and experience necessary to make it fully effective.

While it is indisputably true that free labor is always cheaper than slave labor, when each is under its most favorable conditions, the demonstration of that truth needs more favorable circumstances than were found in the years 1866, 1867. The prejudices of those who must use it were arrayed against it. Scarcity of food and of other necessities of life followed an exhausting war. The suffering of the

very poor of both races were alleviated by government rations and by private beneficence ; but planters were compelled to supply all the wants of themselves and their laborers, while breadstuffs were at very high prices, and implements, farming animals, and their subsistence were equally scarce and dear. At first the freedmen were not disposed to work for hire—demanded excessive wages, and after accepting them, too often rendered poor service. The crops of both cotton and grain failed, more or less, in both these years throughout the South. In some cases there were failures to fulfil contracts on the part of the employer, from disability or other causes, while the "shares of the crop," which had been accepted by the freedmen as wholly or in part in lieu of wages, too often resulted in "nothing but loss," leaving the freedmen destitute and the planter in a condition not much better.

It was not until 1868, the third season of the free-labor experiment, that it became generally successful in its operations and results. Then improvement appeared, and the harvest, abundantly supplying the people with cheap food, leaves a surplus stored up for the future. The profit arising from the sale of the exportable productions of the same season will amount to \$250,000,000 ; and a reasonable forecast of the future seems a promise of equal gain in some of the succeeding years, the increase of quantity compensating for any reduction of price.

The annual gain, be it fifty million or two hundred and fifty million, is no longer to be wasted in the purchase of labor, when as good, or better will be obtained without purchase ; yet the capital must be employed and will seek investment. For some years very little will be needed in opening fresh lands, of which there is already too much open for the labor applicable to it. After meeting the demands of agriculture it will seek other profitable uses, as in banking, railroads, manufactures, machine shops, and the other active employments which capital finds for itself. Prominent among the improvements, that of reconstructing the levees and reclaiming the most fertile of cotton and cane lands should be one of the first, and rightly conducted, one of the most profitable for the employment of money.

OPPORTUNITY FOR COTTON SPINNING.

Proximity to cotton fields, abundance of water power and of building materials, as well as of fuel, both wood and coal, and cheap labor, not suitable for the field, begging employment, all indicate the advantages and certainty of rapidly extending works for the manufacture of cotton in the cotton growing States, especially for the spinning and export of coarse yarns.*

*The publications of the National Association of Cotton Manufacturers and Planters contain some correspondence, from which we select the following statement from South Carolina :

"Mr. L. D. Child, of Columbia. S. C., presents the following statement of the advantages which that section of the country offers to cotton manufacturers :

"1. *Climate*.—Requiring but little fuel. Fires necessary only two or three months in the year. Good resinous-heart pine wood, cut and corded within one

WANT OF LABORERS.

Now that capital is returning into the cotton States, the great want there will be labor, a better use of what they have and more of it, to extend their profitable agricultural business, yet carry forward the other works which will be required. So far, the prevailing conditions in the South have not been attractive to immigrants. Poor crops, dear food, destitution of the common laborer, and these evils too often aggravated by disorder and violence, were reported during the years 1866 and 1867.

The prosperity of 1868 stands in marked contrast to the adversities of the two years preceding. A similar prosperity repeated in succeeding years, until it shall be regarded as the rule and not the exception, supported by assurance of peace and safety, will turn the tide of emigration freely from the Northern States and from Europe to the cotton growing States. During the present year the Pacific Railroad will be completed and opened, a highway by which the Chinese and other coolies or Asiatic laborers may reach the cotton fields of the United States. They are industrious, frugal, quiet, and numerous.

The people of the South, who are to be the immediate beneficiaries of rapidly increasing wealth, will become large consumers of the productions of other States and other countries, and in that capacity will contribute scarcely less than as producers to the general welfare, the extension of trade, and the payment of the national debt.

LARGE PLANTATIONS MUST GIVE PLACE TO SMALL COTTON FARMS.

It seems to be conceded in the South that the large plantation system must generally be abandoned in the culture of cotton, for smaller holdings of land more thoroughly worked under the direction of the proprietors. This will favor a more general industry, more numerous proprietary interests requiring personal care, better economies, and a constantly improving agriculture, which will preserve the fresh lands in good fertility and restore those that have been over cropped.

In cotton growing, as in market gardening, or any other tillage of the soil, it pays better to keep a small body of land, (just enough

mile of the factory, can be procured at only one dollar per cord. Our total cost for fuel for, say, three months in the year, is less than one-tenth of a cent per pound on manufactures of those months.

"2. *Wages*.—Land is cheap and we are enabled to give to each family of operatives a very large garden—large enough to enable them to raise their year's supply of vegetables. Wages are consequently low.

"3. *Operatives*.—The supply is far greater than the demand. They are frugal and industrious. Girls are white. Some few of the men are black.

"4. *Freights*.—We save the freight on bagging and rope and waste, an important item, as we can sell our waste to local paper mills at nearly, if not quite, Northern rates. In the summer of 1867, freight on one bale of cotton, worth, say, \$80, from Charleston to New York, was from \$2 to \$2 50. On yarn, worth, say, \$120 per bale, only 60 cents, a difference of about 2½ per cent. on the value.

"5. *Cotton*.—We purchase of the producer or his agent. The commissions, brokerage, and other charges paid by Northern mills are therefore avoided. Reclamation easy and direct."

for a full and fair use of the labor that can be applied to it,) under high culture, by thorough working and the use of fertilizers, than to half cultivate a larger area with the same or any adequate force.

Since the war, experiments made to ascertain how much cotton can be produced upon a single acre, have exhibited remarkable and gratifying results. When made with "spade culture," stirring the soil deeply and often, after enriching it with guano and phosphates, the product has been very large. In one case, reported on what seems to be good authority, the product of one acre was *four bales*, or over 1600 pounds of clean cotton. In past times one bale to the acre has been regarded as a fair crop, and two bales a very large one on the very richest lands, while half a bale, or about 250 pounds, was for many years a satisfactory result in Georgia and the Carolinas, where the lands were badly worn. The story of 1600 pounds seems almost incredible,* yet it is no more in excess of ordinary products than were some remarkable root crops—*ruta бага* and *man-gel wurtzels*—that have been obtained by the same process of spade culture. Improvement by better farming, to get more cotton from less land, is practicable, and should be sought as the method of true economy, saving in labor, in manure, and all other outlay, yet increasing the income.

RESTORATION OF WORN SOILS—MINERAL AND ORGANIC MANURES.

The value of the calcareous and phosphatic marls, found in various parts of the country, for fertilizing and renovating impoverished soils, has long been known. They were freely used in the older portion of the cotton growing States with beneficial effects. During the few years prior to 1861 some importations were made at the South of various commercial fertilizers, guanos, ground bones, and certain nitrates, phosphates, and super-phosphates, some very good and some having very little value. The importation and use of these artificial manures had been greatly extended just before the war. The really valuable among them, such as the true guanos and super-phosphates, had a marked effect in the increase and better quality of the cotton produced, and this was as apparent on the light and much worn lands of the Carolinas and Georgia, as upon the heavier and fresher lands further west.

THE SOUTH CAROLINA PHOSPHATES.

Since the war, a discovery of exceeding value to the agriculture of the whole country, and especially to the cotton culture, has been made in the "native bone phosphate," vast beds of which have been found lying all along the coast of South Carolina and on the Sea Islands; but cropping out and most easily accessible along the banks of the Ashley and Cooper rivers. Richer in these phosphates

*"Mr. D— has eyes to observe, and reports exactly what he sees. He tells me that he knows several instances where double the usual crops have been made on small patches, and one case where a man raised four bales of cotton on one acre of ground, the whole acre cultivated by hand, no mule needed, nor ass either."

Extract from letter.

than any other natural deposits yet discovered, these beds lie just beneath the supersoil, at the very doorway into the cotton-growing country.

This store of phosphate, thus prepared in nature's laboratory and laid up until the day of special need, contains just the chemical properties wanted for the cotton plant, and which the cotton seed had been abstracting from the soil. So long as cotton seed was returned to the soil upon which it was grown the deterioration of the land was slow, for the fibre of cotton took but little from it.* But cotton seed had acquired a commercial value for the oil to be expressed from it, and for the rich food for cattle and sheep, which was found in the "cake" from which the oil had been expressed. It could no longer be carted back upon the land as a manure. The land, already worn by many years of improvident cropping, having this further loss, rapidly failed. Some portion of the needed restoring and fertilizing remedies could have been found in the artificial super-phosphates and guanos of commerce, but these had become almost inaccessible. Often badly adulterated, and year by year advancing in price as the demand outran the supply of the good articles, while many of the planting people had become unable to buy them, except in very insufficient quantities, there was a great and urgent need of something to replace the cotton seed, and

*S. L. Goodale, Esq., Secretary of the Board of Agriculture in Maine, a writer upon agricultural chemistry, writes thus: "I can conceive of no reason why cotton culture should not be less exhaustive than that of any other agricultural crop with which I am acquainted. Look at it: the product desired is merely cellulose or woody fibre. In this form it possesses a market value of, we will say, \$100 per acre, but to return to the soil it is of no more manurial value than so much saw-dust or wood in any other form, consequently it may be exported with impunity. Besides this, there is a side product of seed which draws heavily upon the soil; but this may be utilized and all of value to the soil be returned to it. The seed may be decorticated, and the oil expressed and sold with no loss of ash constituents from the soil. The cake remaining possesses both feeding and manurial value in a high degree. Ground to meal and fed in connection with corn-fodder and annual grasses, (if no more permanent grasses can be grown with improved management,) it can be converted into meat and manure, and thus fertility be fully maintained or even increased.

"Phosphatic and alkaline constituents exist in decorticated cotton seed in large proportion. Its ash is abundant, being not less than $7\frac{1}{2}$ or 8 parts in 100, and of this ash 39 per cent. is phosphoric acid, chiefly in combination with potassa, a little with magnesia, and a very little with lime. Thus a ton of cotton seed cake—that is, of seed with the hulls taken off and the oil pressed out contains about 60 pounds of phosphoric acid, which in soluble form, as phosphate of potash, and with its combined alkali, cannot be deemed worth less than ten cents per pound—I think it should be rated higher, but, say..... \$6 00

"The same cake contains $6\frac{1}{2}$ per cent. of nitrogen, say 130 pounds to the ton, and this, rating it at what is paid for it in Peruvian guano, say 17 cents per pound, amounts to..... 22 10

"So we have as the manurial value of one ton of decorticated cotton seed cake, at least..... 28 10

"It is well to bear in mind that the larger part of this (when the cake is fed to stock) would pass away in the liquid excreta, and unless the urine was absorbed or somehow saved, nothing like this value would be realized. In the light of these facts it is easy to see how wide a difference may be occasioned by the loss of the seed on the one hand and its use on the other."

restore to the soil those chief ingredients, indispensable to the production of a good cotton crop—phosphoric acid, or soluble phosphates. In this emergency came the discovery of those natural deposits.

Already too much space has been given to the effort to report faithfully the condition of the cotton culture of the United States, at the close of the year 1868; especially to exhibit the wonderful change from its condition one year previous, and from all the circumstances to draw a fair statement of the promise of the future for this great interest.

OTHER IMPROVEMENTS—SELECTION OF SEED, ETC.

It might be useful, did space permit, to notice in detail other movements in progress for the improvement of cotton culture, prominent among which would stand the valuable experiments in "improvement by selection of seed" from year to year, always guided by rules which define the object sought—in cotton, spinning qualities, such as length, strength, fineness, and the cohering together of the fibres; rapid growth and early maturity of the plant, and a habit of yielding well. Intelligent men are engaged in these efforts in various parts of the South, and of the results attained there are good reports from Georgia, Mississippi, and Arkansas. One new kind of cotton, the "Peeler," originating in Mississippi, is already in market, and bears a price 25 or 30 per cent. higher than other green seed cotton of the same grade, because of its superior staple.

ART. VIII.—WOMAN IN THE NINETEENTH CENTURY.

EXTRACT TRANSLATED FROM THE FRENCH.

In this conspiracy of men against women, there is but one real danger for them—that they may become disgusted with their sex, that they may be deceived with regard to their power, induced to believe in their own inferiority, and persuaded to invade from time to time the privileges and prerogatives which men have seized upon and reserved for themselves.

Thus we sometimes see a woman take part in the discussion of the subject, and struggle for a royalty which is hers already by right of birth—descend into the lists with villains and obscure knights, and expose herself to contempt, in order to obtain a crown which she should have been the one to award, and whose price should have been doubled by a single glance from her.

It is as though a god should descend to the foot of his altars smoking

with sacrifice, and mingle with the crowd of worshippers for the pleasure of assisting to offer incense at his own deserted shrine.

Other women affect to adopt the ideas and sentiments of men;—thus going against the natural instinct, which, to render the two sexes as different as possible, leads men to exaggerate their strength and courage, and women their weakness and timidity.

Some even go farther still, and seem endeavoring to transform themselves into men. We see them sometimes sacrifice for this absurd purpose their charming hair, which they cut short like that of a man. We see them also, on horseback, add to the long skirt, which gives them so much dignity and grace, the tall black hat, the most unbecoming part of masculine attire—and women have now begun to wear coats, cravats and collars like men.

These eccentricities do not by any means spring from an exaggerated admiration of manly qualities. It is only necessary to listen for a short while to the conversation of women to discover that they are far from feeling any such admiration. Each one is so disgusted at the blindness and stupidity of men in admiring other women, that she conceives a bad opinion of the whole sex in consequence. Women, for the most part, do not like us;—they do not choose a man because they love him, but because it pleases them to be loved by him. Therefore they do not in reality wish to resemble us; but they imagine us to be in earnest when we boast of our superiority, when we feign great admiration of ourselves in the hope of making them admire us also;—they listen to our scorn of their weakness, and at last come to the conclusion that they will acquire a new claim to our regard by striving to show us that they too possess the fine qualities on which we pride ourselves.

This affectation succeeds with certain men. Just as small men prefer large women, and do not readily lose their hearts to less than a certain avoirdupois weight of beauty—so men of feeble soul, of narrow mind, naturally prefer energetic and masculine women.

But it is easy to see that women are not sincere in their regret at not having been born men,—at the very moment when you hear them most insisting upon a share in our advantages and rights, they do not dream of giving up the smallest part of their own privileges; and the woman who says to you with disdain, "I care little for the false devotion and hypocritical respect which you offer me in the place of liberty," will be highly indignant if you neglect to pick up the handkerchief or fan which she has dropped in the heat of argument.

However, as there may possibly be women who really desire to be men, I will here tell them of a way to change their sex once for all; it is

not of my own invention, but is set forth by one of the most brilliant writers of antiquity. She who is really and truly wearied of being a woman must seek until she finds two serpents coiled together: the serpents being found, she must strike them boldly with a wand; and so sudden will be the metamorphosis, that the blow begun by the delicate hand of a woman will be finished by the muscular arm of a man.

Ovid recounts in the third book of his *Metamorphoses* that Teresias thus changed sexes.

But let no woman try the experiment unless she be very much in earnest. Let her remember that she must give up not only her fair soft skin, her small well-shaped feet, her slender graceful figure, and all her most fascinating airs and captivating graces,—but she must also renounce fine silks and satins, must take the flowers from her hair and the jewels from her ears,—nor can she ever again display her beautiful arms and shoulders in evening dress.

Seriously speaking, I would beg women not to believe in the abuse they hear from men, and above all not allow themselves to be influenced by it. Let them remain as they are, keep their good qualities if they can, but for Heaven's sake never seek to lose the defects with which they are reproached; it is by means of these defects that they reign;—men hate them as they do the soldiers and satellites of a tyrant, but that is no reason why the tyrant should disband his army.

Generally speaking, it is only late in life that men are so quick to perceive the faults of women, just as the fox found that the grapes were sour.

We begin to die much sooner than we are willing to believe, with the first tooth we lose, with the first grey hair. Some begin by the exterior; the principle of life, besieged and driven from its outworks, takes refuge first within the walls, and then in the citadel—the heart. Others die first within, and wander about for years, dead souls in living bodies. Let us learn to distinguish the living from the dead.

Before proceeding any further, I wish it to be understood that my fair readers are not to accuse me of blasphemy on account of the truths I am about to tell them,—but that they are to consider me as a friend who loves them so well as to be able to refuse them nothing,—not even good advice.

* * * * *

A woman has no childhood—but what is an old woman? At what age does a woman become old?

I have consulted women themselves, and have come to the conclusion that they know no more about it than I do, and for this reason—they

see others appear old at an age when they themselves feel young. Hear a woman of twenty speak about old women—she does not speak of them as the traveler speaks of those who have reached the end of the journey which he has just begun—she does not speak of them as of persons whom she will one day resemble. No, it would seem that there were two entirely distinct species of women, as there are different races of men—and that she who speaks to you belongs to the youthful species as she does to the white race. Nothing is more common than to hear women who are no longer young speak disdainfully of others about their own age as old women. A woman at twenty calls women of thirty old; at thirty she is shocked to see society encumbered by women of forty; at forty she cries, “When I am fifty, like Mrs.——, I shall not wear pink, or go so much into the world.”

A woman is not old as long as she is capable of inspiring love. Besides, what do we mean by being old? It does not consist in having spent a certain portion of the mysterious number of years which has been allotted to each one of us. If a woman were to preserve to the age of a hundred years the attractions of youth, she would be younger than a woman of twenty who had lost them. To be old is to have no longer either beauty or charm. This is most certainly a truth—yet it is far from being generally received; and if we smile at the folly of a man who says “I prefer an old woman who is young to a young woman who is old”—we should laugh outright were he to put his theory in practice.

Certain writers, from a desire to console women who are not pretty, have in every age endeavored to cry down beauty, though they have not yet succeeded in disgusting any one with it. One of the most common arguments against it is the shortness of its duration. But what ever lasts very long? Are we not to admire the day because it will be followed by obscurity, the spring because it will be replaced by winter? Is a fine fruit to be despised because it disappears in three mouthfuls? Should we disdain a savory cutlet because it is not immortal as the liver of Prometheus? Do we refuse to inhale the perfume of the roses in our gardens, because they are not so lasting as artificial ones made of paper and silk?

Women are not the dupes of these malicious speeches about beauty. Say of a woman that she is bad tempered, heartless, peculiar—that she deceives her husband or her lover—but add that she is beautiful, and you may be sure that the resentment she will show is put on for the sake of appearances. Do you wish really to offend her?—say that she is good and kind, modest, sensible, acquitting herself with propriety in every circumstance—but that she is ugly—then you will see what real resentment is.

Listen to the questions people always ask about a woman they do not know. "Is she pretty?" is the first question, and generally the only one. If a second be asked, it is with the desire of discovering something which will lessen the effect of an affirmative answer to the first. If she is pretty, it is hoped that she has no sense. If she is both pretty and intelligent, there is still a chance of her being frivolous or fast; but you may be sure that these faults would be readily pardoned if she could or would make the sacrifice of her beauty in return.

I do not understand by beauty what women themselves generally do—I am fully convinced that they know nothing about it. How could they ever be capable of judging of it? Beauty is not a certain form of certain features. Viewed in this light, it would not be the same thing in any two nations, and even in one country would vary with every fashion and in every age. I mean by beauty that secret charm, that mysterious influence, which excites in the heart and mind of the beholder the softest and most delicious intoxication.

Women can judge of the beauty which is seen—men only can recognize the beauty which is felt. And this is the true beauty—in every country, in every age, it has exercised the same gentle but irresistible sway.

Hence it is that women pass a great part of their time in expressing their astonishment at the passions excited by certain women whose beauty does not conform to the standard which they have fixed upon. "What," they say, "is it possible that Mr.—— has blown out his brains for the sake of Miss——, whose nose is not half so good as mine! What blind creatures men are!"

I am far from wishing to drive to despair those women to whom Heaven has denied the gift of beauty, yet I would not conceal from them that they are born under an evil star. Many volumes have been written to show the contrast between the destinies of the peasant and the prince—but the difference between these is nothing in comparison to that between an ugly woman and a beautiful one. Only you must not think yourself either very charming or very plain on the faith of your mirror; I repeat it, it is impossible for you to judge of your beauty except by the impression it makes upon others.

This frightful inequality, which would seem to divide the sex into two distinct races, is fortunately modified by many circumstances. If beautiful women are the nobility, and ugly women the mob, it must be confessed that very few women are positively ugly, and that most of them belong to the middle class.

Women who are not absolutely pretty are almost always relatively so;

and I have remarked that these last take great care not to spoil what beauty they have, while those more magnificently endowed are sometimes so democratic, so anxious for equality, that they try to diminish the influence of their charms by affectations and pretensions of every description.

A boy on coming into the world, draws his number at his birth—that is to say, the condition of his family and his own natural powers are destined to shape his career in life.

But a woman, if she has drawn a bad number at her birth, has a right to a second trial. She draws another number when she marries. She becomes by marriage another person, and does not even bear the same name. Let a woman be born with everything against her socially, of a poor and obscure family—yet she has only to pass at a certain hour of a certain day through a certain street, and her destiny may be completely changed. A man sees her, loves her, marries her. All that this man possesses by the accident of birth, all that he has gained by the efforts of a lifetime—fortune, rank, consideration, fame,—all is hers in an instant: and for this it is only necessary that she should be beautiful, that she should be agreeable, that she should please—that she should be a woman.

I could here enumerate the brilliant advantages of beauty—but I will only mention one. Beauty fascinates men to such a degree, that in former times it had power to draw them into marriage.

But at the present day, the subject has been reflected upon, and there are very few men who marry for love—A poor maiden runs great risk of guarding that honorable title all her life, however beautiful she may be.

It is now only by accident, by a sort of prodigy, that a man marries a woman solely because she is charming. In these mercenary days beauty has greatly diminished in value.

Should it ever again be as much thought of as formerly, it would be possible greatly to diminish the number of single women by adopting a custom of the ancient Persians, which was extremely sensible.

It is said that they were in the habit of selling their beautiful women to the men who wished to marry them, and of bestowing the money so obtained as a dowry on the ugly ones—that is, the most beautiful enriched the plainest, the second in beauty the next in ugliness, and so on.

But this would be quite impracticable at the present day. In the first place, few individuals would be found willing to pay the price of beauty,—and if it were possible by some other means to enrich ugly women, they would be the only ones sought for, and all others would be universally neglected.

Seriously speaking, the custom of marriage is disappearing more and

more, and the number of unmarried persons increasing among us, especially in the middle classes of society. It may not be uninteresting to endeavor to find out the cause of this.

There are few young women in the working-classes who do not marry, because to the working-man a wife is a companion who will share the cares and labors of his life. While he goes abroad to toil at his trade and to support his wife, she works for him at home, cooking his food and washing his clothes, and not even drawing back from out-door work, should it be necessary. That is to say, marriage is to them an association in which both labor in proportion to their strength. The married working-man spends less than when he was alone: his clothes being made at home, and kept in good order, his food being less wasted and better prepared, all this more than compensates for any additional expense entailed by the presence of a woman in the house. I should be inclined to favor an equality of rights between the men and women of this class, even without taking into account the fact that in all uneducated classes the women are more intelligent than the men, and superior to them in every respect.

In the wealthy classes, where the woman brings a large fortune, marriage is also common. But in the middle classes, how is it possible to marry at the present day?

All the women of this class are brought up in the same manner, with a view to the best possible chances in marriage; each one is so bent upon the highest prize, that she is not willing to put up with anything else.

Every girl is now educated with the idea that she is to draw in the lottery of marriage one of the great prizes which are becoming more and more rare. She imagines that her want of fortune may be made up for by a more finished education, by more varied accomplishments. But she deceives herself—these talents, these accomplishments, on the contrary, render wealth more necessary, I will even say indispensable.

When we reflect that women of the middle class are brought up to shine in society—that there are no marked distinctions of rank—that the standard of expenditure is that of the wealthiest—that what are now considered the necessities of life far exceed what were formerly accounted luxuries—a man must indeed be desperately in love if he does not draw back at the thought of the mountain of velvets, silks and jewels, which he must wear out life and strength to obtain, that his wife may be dressed like other people.

For men of this class a wife is not a companion who shares every care and labor, but an idol which they must pass their lives in adorning for others to admire. A man of this class who marries a woman without

fortune would be capable of buying a horse which required to be fed on emeralds and pearls instead of hay and oats. Marriage is thus the greatest luxury in which a man can indulge himself. Is it astonishing that it should become more and more rare?

ART. IX.—MANUFACTURE OF COTTON.

BY LORING AND ATKINSON.

The effects of the great profits from the last crop, 1868-9, which was less mortgaged than any previous crop for a number of years, and which amounted to \$200,000,000 or more, are seen in increased demand for local securities, in the construction of new railroads, in internal improvements, and in increased manufacturing interests of the South. Manufacture near production is always the wealth of a neighborhood. Hitherto, owing to slavery always necessitating an agricultural community, the cotton manufactures of the South bear at present but a small proportion to the total in the United States. Out of 548 mills, containing 5,968,000 spindles, and consuming 371,688,716 pounds of cotton, reported to the National Association of Cotton Manufacturers and Planters, only 69 mills, 199,772 spindles, consuming 28,042,766 pounds, were in the Southern States. The Southern mills make coarser goods than the Northern, their average number of yarn being $12\frac{1}{2}$ and $27\frac{1}{4}$ respectively.* The advantages of manufacturing at the South and near the cotton fields are:

1. Plenty of cheap water power in every Southern State.†

*Supplementary report of the Association, containing returns up to October 1, 1868.

†We have received many accounts of mill rights and water power, but there is only one of which we will speak in detail—the Millwood estate, lying in Abbeville county, South Carolina, and in Georgia, on the Savannah and Rocky rivers, sixty miles above Augusta, Georgia. It contains 10,400 acres, with water power which could be multiplied to hundreds of feet of fall and hundreds of miles of mill race. The Savannah, now spanned by this estate, is half a mile wide.

The owner of the estate offers to sell it for an annuity, and writes us as follows:

"Here is verge for untold millions, ready for immediate development into the grandest enterprise of the kind in the world, overwhelming in its influence, and affording the base for expansion to any extent. I would be willing to sell separately, as the river divides. The Georgia side with say, 2400 acres, 120 feet fall, 7 miles water power. The Carolina side with, say 8000 acres, 150 feet fall, 12 miles water power, river coast, besides the creeks. After payment of the first annuity, all subsequent ones will be easily provided for by the estate itself in several ways: from rent of the lands, of the gold mines, from lumber, furnishings to the railroads, etc., leaving intact profits from the water power, sale of town lots and the like. Take the first mode: I rent for the fourth of the cotton and the third of everything else, all to be hauled and put into the buildings I designate, by my tenants, who are bound to send to my gin, mills, tan-yard, thrasher, smith-shop, employ my boats, etc. Since the Blue Ridge Railroad will

2. A mild climate, avoiding the expense of fires for heating purposes, except for a small portion of the year, as well as the freedom from danger from frost, and consequent ability to build lighter earthworks for canals, etc.

3. Low wages and plenty of operatives, men and women, who would not think of working as laborers in the field will gladly become "hands" in a mill. 4. *Saving in transportation and commission on both goods and raw material, buying the latter at the point of production, while a market for goods is to be had at the same place. Even if the yarns are exported, freights are lower for yarns than a corresponding amount of cotton lint, and also the bagging and rope saved as well as freight on the same.

Col. J. B. Parmer gave the following figures, showing the advantages of Southern over Northern manufacture, taken from the books of the Saluda Cotton Mills.

Report in the *Columbia Daily Phoenix* of an Agricultural Convention, held in that city on April 28, 1869 :

"It must be recollected that we have employed in the manufacture of No. 20 yarn only 4000 spindles (Jenks' ring travelers.) Of course, a greater number of spindles, or the production of yarns of a lower number, would ensure a less cost per pound :

Labor—Superintendent, 37 ; carding, 56 ; spinning, 76 ; reeling, 75.....	2.44
Repair—Labor and material (machinery nearly new).....	22
Packing, bundling, etc., labor and materials.....	58
General Expenses—Watch, 13 ; hauling, 32 ; findings, 20 ; oil, 15 ; salaries 64 ; miscellaneous, 56.....	2.00
Total per pound.....	5.24

come along by the time the estate is fairly started, and make provisions more abundant and cheaper than anywhere else, afforded to a manufacturing population, the estate can be devoted mainly to raising cotton. Counting the crop as only 12,000 bales, at \$100, the fourth of that for rent, and the twelfth for ginning, after satisfying the annuity, will give a sum perhaps larger than the company would lay out for improvements the current year. But my cotton sold since the 1st of January, averaged \$141 the bale, and other rent items are not considered. By next October full preparation may be made here for spinning as much of the present crop as is in convenient reach. And this can be done by my own freed people, tenants on the estate, at one third wages paid with you, for superior mechanics, one-fourth wages for as many of the others as may be wanted. I had twenty-seven prime hands, who never struck a lick in the crop, mechanics of all trades. The river has the characteristics of a mountain stream. Stockholders would be tempted to build on the wooded promontories, jutting over limpid waters, foaming among rocks and fanned by westerly breezes, throughout the summer. This is a region in which to grow old comfortably."

"Southern manufacturers have this great advantage over Northern competitors. The reduced cost of transportation enables them to buy their cotton in the seed. This works for the advantage of both planter and spinner. The planter can put all his hands into the fields to pick, and gather his crop earlier and more of it. The spinner can separate the seed from the lint at the mill, using improved machines, unlimited steam power, and skilled labor in the ginning, which, though perhaps the most important process of manufacture, is at present left to rude field hands. Every fibre of cotton that will spin can thus be sorted and saved from the trash, and the seed can either be returned to the planter, or sold to be manufactured into oil and oil-cake.

Add—Loss by waste (450 lbs. cotton, costing \$90, making but 400 lbs. of yarn).....	2.50
Ten per cent. for wear and tear of machinery, charged to production per pound.....	1.26

Total cost of manufacturing cotton, worth 20c. per pound.....	9.00
Freights to New York or Philadelphia, 65c., insurance 15c.....	80
Cost cotton per pound.....	20.00

Total cost per pound of Southern yarn (No. 20,) delivered in New York.....	29.80
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The <i>very lowest</i> estimate I have seen of the cost of manufacturing at the North, places cost of labor, repair, packing, and general expenses at per pound.....	10.24
Loss by waste (cotton at 20c. in Columbia would be 22½c. in New York; therefore, 450 lbs. cotton would cost \$101 25, and would make 400 lbs. yarn).....	2.81
Ten per cent. for wear and tear machinery.....	1.26

Total cost of manufacturing in the North.....	14.31
Add cost of cotton.....	22.50

Cost of No. 20 yarns, manufactured at the North.....	36.81
Showing a difference in favor of the South, of per pound.....	7.01
Both using the same quality of cotton.	
Deduct commissions, cartage, etc.....	2.01

And we have a net profit to the Southern manufacturer, provided he sells at the cost of Northern production.....	5.00
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As further evidence of the profits of Southern cotton manufacturing, we give below an account of six months' work of the Augusta Factory, one of the most successful of the South, from the report of President Wm. E. Jackson, Esq., presented at the semi-annual meeting held June 30, 1868, in the city of Augusta, Georgia :

"In presenting my twentieth semi-annual report, it is with pleasure I can state the condition of the Company is very favorable :

The gross earnings for the past six months have been.....	\$135,510 65
Interest received.....	3,921 65

\$139,432 30

From which is deducted Expense acc't.....	\$ 8,731 64
Repairs acc't.....	3,475 11
Taxes paid.....	19,691 41
	31,898 16

Leaving as net profits.....	\$107,534 14
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"From which two dividends of 5 per cent. each, amounting to \$60,000 have been paid, enabling us to carry to the credit of profit and loss account \$47,534 14, making the amount now to the credit of that account \$224,798 22."

Mr. Jackson goes on to speak of the result of the ten years work of the mill as follows :

"It may not be uninteresting to some of our present stockholders to state what has been accomplished in the past ten years. It will be remembered by those who were among the original purchasers, that the property was purchased of the city for \$140,000 on ten years' credit, with interest at seven per cent., payable semi-

annually, and one-tenth of the principal annually, the purchasers paying in as commercial capital \$60,000. This amount, in consequence of the dilapidated condition of the property, was almost entirely expended in the first two years, in repairs rendered necessary by the then condition of the property.

"We have, since the purchase, paid for the entire property without calling on the stockholders for another dollar; added largely to the property by purchase and building, bought about \$100,000 worth of new machinery, increased the capital to \$600,000, by the addition of a portion of the surplus; paid dividends regularly, and have now a property worth the par value (\$600,000) in gold."

ART. X.—URIEL ACOSTA—A TRAGEDY.

BY KARL GUTZKOW.

TRANSLATED FOR DE BOW'S REVIEW BY MRS. SARAH A. DORSET.

Scene III.—*DeSilva, Manasseh.*

- Man.* I thank you for coming to me, Silva!
You are endeavoring to restore peace
Again to my house—still, make no complaints,
Neither any reproaches, Silva. Spare
Me! at least, give me now rather friendly
Consolation, instead of rough rebuke!
- Silva.* You fly from sorrow steadfastly, oh, most
Extraordinary man! but even with
All your effort, she will not be ignored by you.
- Man.* Have you spoke to the Synagogue?
- Silva.* I come, just now, from the Council of Three.
- Man.* Is all prepared for the atonement?
I wish the thing to be gotten over
Immediately, so that bad blood may not
Mingle itself in it, and that the grudge
Of superstition and fanaticism
May not grow obdurate.
- Silva.* You call it all
Fanaticism, but I term it Faith—
- Man.* And the enmity which has fallen on
My head, and this revenge, would then be works
Of Faith! Jochai's whole connection greet me
No longer. I have already noticed
On the Exchange that all seek to find points
In which I may be injured, so, you know
Very well, when a merchant is driven
Thus into a corner, he's lost, Silva!
- Silva.* Have patience yet, and hope—

Man. (*Shrugging his shoulders.*)

Patience and hope !

Here, where in an instant, the fruits of a
Whole life's labor may be destroyed,
If Ben Jochai chooses to crush me—then—
Brother-in-law !

Silva.

Man.

Enough of this ! only do

Make speed ; you understand, hasten ; there's need
For it ! You wish to speak with Acosta ?
Tell him what forms he has to submit to,
So that we may not be compelled to have
Swarming around us the whole pack of hounds
Of priests ! I go, Acosta comes ; speak you
With him ; and confess, DeSilva, (we are
Alone,) how can you still be orthodox ?
You cannot love these priests really in
Your heart ? How is it possible that a
Man, conducted by philosophy out
Of the ancient desert, can willingly
Lose himself therein again ? That a man
Can return whence he set out ? It is true,
When a child, I believed willingly that
In the faith twice two was equal to five ;
But it goes with fresh knowledge, this child
Faith, and that twice two may be five must now
Be demonstrated ! Excuse me, I must see
My clerks ! The multiplication table
Comes often to my mind in my present
Soundness of intellect. Its very sure ! [*He goes out.*]

Silva.

(*Looking after him.*)

He mixes God's great affairs up with his
Figures and his accounts of merchandise.

Scene IV.—Uriel, (comes from within,) DeSilva.

Uriel.

(*Remains standing at the door.*)

I am here, DeSilva ! Shall the accurs'd
One dare to approach such a righteous soul ?

Silva.

The holiest duty is often the most
Sorrowful, and we have to strive much
With ourselves, and often against our wills,
To do it. Acosta, I have not so
Willingly aided in overwhelming you.

Acosta.

Well, I know that ; you left me one way
Of escape—the only one that I will
Not take !

Silva.

It troubles me that you still care
For Judah. Your ground appears to me too
Worldly altogether, and Judith's love
Seems to me inspired truly by the
Devil. Enough, I shall receive you as

My relative, and the more joyfully
I proffer you my hand as a man of
Talents, a genius, an inspired soul,
Whom Amsterdam may yet be able to
Retain here.

Uriel. Why do you mock me with an
Impossibility, DeSilva. I
Am happy in the love of an angel ;
But how dare I receive it, when I know
Not a single mode of sheltering her
Dear head ?

Silva. Still—I come from the Council
Of Three ; the meeting was on your account,
The son-in-law elect of Manasseh
Wanderstratten, will not be too hardly
Pressed for proofs of excommunication.
You are expected ; walk boldly there, to
The forbidden place—knock three times upon
The outer door of the Synagogue—and
Do not let the swarm of people see you.
In a brief time, a servant will come and
Conduct you in haste to the judgment seat
Of the Rabbi Akiba. This is the
Command of the Council. You will obey ?

Uriel. I listen to you in astonishment !
I was asked to come here to meet you ;
Therefore I came. What speak you of now ?

Silva. (*Abruptly.*) Of your atonement !

Uriel. Of what, DeSilva ?

Silva. Does it appear so strange to you ? Do you
Not know of yourself that you can be freed
From the ban and curse only by an act
Of atonement ?

Uriel. Of atonement ! a strange
Word, that runs but trembling over my lips !
Silva, who told you that I expected,
Or desired to be freed from this, your
Sentence of the ban ?

Silva. Acosta, I now
Beseech, gather your senses together !
What is your delirium worth to us
As character ? To give an accursed
Man our daughter, is to bring him back in
To the name and race of Judah, and you
Will be, if you remain in Amsterdam,
Still firmer, surer—these Christians protect us, not you.

Uriel. I know that,

And have, therefore,
Considered carefully whether I would
Be permitted, through men's humanity,

To nourish here my unrecognized
Existence ! But I have always as a
Thinker regarded you ! Has a voice from
Heaven said so determinately to you—
Expiation ! atonement, here, Silva ?

Silva. (*Half apologising.*)
Repentance appears beautiful even
To the heathen and to heroes.

Uriel. A true
Hero repents through second deeds only !

Silva. To acknowledge error is no disgrace.

Uriel. I have been untrue to myself, not to
The priests !

Silva. The priests will not receive the words
Of your repentance as towards themselves.

Uriel. If it is for God, then I know the
Way for myself to Him.

Silva. Oh, Uriel !

It is that I condemn so much in
You—this idle boasting of an honor
Which is not worthy to be call'd honor ;
Of this small change which you would cast upon
The counting board of God. Penitence is
Of no value to Heaven ; it is of use
Only in the universal, fixed
Order of this world—to restore the oft
Broken harmony of this whole earth-life ;
And into the priest's ear, is its proper
Place of utterance ! Consider the great
Edifice ! Take thought of the all, and what
Are you ? A grain of sand, not more, in this
Broad universe !

Uriel. I am a whole world to myself.

Silva. If you puff yourself up, you are.

Uriel. This world, all, is also only a poor
Prattling nonentity !

Silva. Then you believe
Yourself to be free ? You knock idly with
Your thoughts against the illimitable ;
But I search deep in nature, in the death
Of winter, in the blooming of fresh spring.
In the growth of plants, and if I put the
Glass to my eye, so that this worm "I," can
Gaze even so far as Saturn, then I
Feel and see that we are not made, nor are
We living in isolation, nor for
Ourselves only. No ! for we exist, bound
In the universal whole, and are free
But in bonds of stern necessity. If
It had ever come into my mind to

Do so, I would never have set myself
 Against the fast faith held by our fathers,
 Which has stood sure a thousand years. But
 The wit of my intellect should not have so
 Betray'd me, that I would have said : " This is
 An error ! " even had I deem'd it so !
 For this error has endur'd three thousand
 Years. It has lightened hope's sorrows for
 Ten times ten thousand hearts, and brighten'd
 The pathway of the grave for them. What has
 Your faith done for even one ? Lay your hand
 Upon your breast, Acosta ! not one made
 Happy by it ! not one—no, not yourself !

Acosta.

That is very possible, DeSilva !
 Probable ! Perhaps it may be right, that
 One should term the staff of a blind man, which
 Has conducted him safe three thousand years,
 His true, clear seeing eye. That staff, it keeps
 The blind man from falling, it helps him to
 Touch, it aids him to find—it is his eye !
 But, if presently there should fall a stroke
 Of lightning, and in his twilight the blind
 Eyes should open, seeing, really seeing,
 Silva, the once blind man gazes charmed
 Upon the radiant orb of God's bright sun,
 The sun dazzles him so, unused to light,
 He cannot even name the things he sees ;
 He touches what shocks him, hurts him. Ah, yes,
 He is confused—he wavers—the youthful eye
 Has still not yet the skill and firmness of
 The thousand year old staff. So would you have
 The gloomy cling still to your dark, dim world !
 And why, since truth is not happiness—the
 Full happiness of life is equally
 Unexpected and unattained—because
 The unloos'd eyes of the blind make him
 Hesitate, waver, and fall, why then should
 The unaccustomed glance into the fresh
 New life be called error—the vision of
 First joy be called sin ? No ! because the glance
 Of my now scarce open'd eyes but bring me pain,
 And the light wounds me sorely, I will not,
 Because of the wounds of truth, recant it,
 Nor make an atonement I do not mean.

Silva.

Go your own way, then ; the curse will follow
 At your heel ! Judith will not be allow'd
 To give DeSantos twice the lie—she will
 Never leave her father in the ditch, and
 Wander with you in love's forest. Farewell ! [*Pausing*
 By your parable of the blind man, I

Am made to remember your blind mother.

[Starts to go and returns once more.]

Acosta, deep in the hearts of our poor
People grows the magic tree of family !
Formerly, in ancient days, there were oft
Branches torn from off our tree of love, as
Absalom from David ! But later, in our
Exile, when we were so persecuted
That nothing remain'd to us in our woe,
Except this consolation : that we still
Could love our children, that a father still
Could cherish us in time of need, that a
Brother still could call us brother, then this
Band of honorable faith within the
Holy circle of our firesides grew
Yet stronger. We brought to this altar of
Domestic love the sacrifice of will and
Freedom ; we ministered to many
Seeds of our old feeble parents, and we
Did not cast off from ourselves this burden
Even at our majority. No, we
Bore it, and watch'd over them until
The death of our beloved freed us from
Care. Then first we belong'd to ourselves ; then
Only could we fling the banner of our
Freedom on the wind. Acosta, hear me !
These airy phantoms before your soul, it seems
Can neither bend nor fright your firm spirit ;
The sorrows of strangers cannot move you,
Manasseh's grief does not affect you, nor
Judith's love, even, cannot soften you !
You must argue with yourself, whether your
Heart or your bold spirit is to conquer !
Probe yourself in the depths of your own soul,
And what you find the nobler do. Farewell !

[He goes within.]

ART. XI.—DEPARTMENT OF AGRICULTURE.

LOUISIANA AGRICULTURAL AND MECHANICS' FAIR.

Under this title the *Southern Farmer* has some strictures which may or may not be correct. We publish them that it may be seen what those think upon whom, at last, depends the success of all agricultural exhibitions. To organize a Fair on the mutual admiration principle—to levy upon the liberality of a city a tax to be expended on popular pleasures, does not add to the prosperity of the

city. The object of such assemblages should be to attract citizens and strangers. All umpirage should be impartial, not complimentary. It should be so conducted as to render such strictures as those of the *Southern Farmer* impossible, because they would be unjust. Not conceiving it our mission, as a Southern magazine, to flatter our own people indiscriminately, we publish the impression which our Fair management has produced upon visitors. This impression may be readily removed and the co-operation of the whole country secured to an excellent institution :

There was much, much to see, and a student of agriculture or mechanics could have had rich food for the mind. With all this, and a liberal award of merit granted to the President and managers, we are compelled, from our stand-point, in reply to many inquiries, to say, in plain language, it was anything but a success. Indeed, the affair was a failure, though it may have gone far to show the investment was a good one to the stockholder. If there was a solitary feature that would make one think "the Fair" was the farmer's and mechanic's friend, we would like to know where it was and when exhibited. Sewing machines, pianos, plows, steam engines, etc., were there, so were monkey shows, but all as advertising mediums, a "give me your last greenback." Merchants advertised freely—articles exhibited in pretty style. But where was the test of plows? How were trials made of anything, except by interested parties?

Who were judges? We might love the man Stonewall Jackson as a pure Christian and as a brave among the very best generals, yet would he necessarily be a proper judge of the merits of a good milch cow, or a seed planter? Why place on committees men of no practical knowledge of the peculiar business? A man may be an excellent salesman, and make up a suit to fit like the skin, yet would not know how to gear a horse to a plow.

It is a burlesque on plowing to have one man to drive, one to lead, one to hold the plow handles, and one to follow behind and turn down the furrow still.

A gin stand needing one man to feed and another to hold the seed cotton on the gin saws would not be profitable to a farmer with no help. Why give a blue ribbon to a washing machine, as best for wool washing, when never a pound of wool was washed in it?

We saw and handled a specimen of cotton from the new candidate for honors—the Needle cotton gin. We took it from the stand ourselves, and asked one or two, who had seen some cotton, if it was a sample of good ginning (the gin warranted never to nap or twist, nor cut cotton,) or was it a good sample of a mouse's bedding? We say the teeth are too curved and the work too slow.

We propose to enter the lists next year, and we intend to have some rich and popular merchant as our partner, thinking we shall be certain for half interest, for all premiums we offer for a "*verbum sat*is."

Since writing the above, we learn that the Star Gin and Condenser, beaten so badly by the Gullet, received the blue ribbon also. We suppose that blue ribbon was to sell gins to the farmer.

The *Farmer* is wrong in criticising the exhibition of sewing machines, steam plows, etc. It is very important to the Southern planter and the planter's wife, to see every labor-saving machine in the economy of the field or the household, no matter that the motive of the exhibitor may be greenbacks. We cannot expect them to send their inventions with any other than a pecuniary motive. We have no other motive in inspecting or adopting their machines. The Louisiana Fair has been a success, useful to the South. The

exhibition of the Fowler steam plow caused E. Lawrence, Esq., to import a steam plow, which has been a practical experiment for the gratuitous good of the whole South. We expect continued improvement from the managers of the Fair, and take the responsibility to assure the *Farmer* that whether the defects of which it complains were true or imaginary, they will be placed beyond the possibility of imputation in the future. We hope the editor of the *Southern Farmer* will attend the next Fair, and shall look for his report with confidence, assured that he will, if convinced, make the amende of a proper commendation of a valuable institution.

CHEMICAL COMPOSITION OF MANURES.

Professor Johnston, in his lectures on agricultural chemistry, says if the produce of a field be at the rate of twenty-five bushels of wheat per acre, weighing sixty pounds per bushel, and if the straw average twice the weight of the grain, then the quantity of inorganic matter carried off the soil by the crop will be, per acre :

In 1,500 lbs. of wheat at 2 per cent. of ash..... 30 lbs.
In 3,000 lbs. of straw at 6 per cent. of ash..... 180 lbs.

Total..... 210 lbs.

and the composition of the matter thus carried off, according to analysis, will be :

	Grain. lbs.	Straw. lbs.	Total. lbs.
Potash.....	7.15	22.44	29.59
Soda.....	2.73	0.29	3.09
Lime.....	0.85	12.09	12.94
Magnesia.....	3.63	6.39	10.52
Oxide of iron.....	0.20	2.35	2.55
Phosphoric acid.....	15.02	5.54	20.56
Sulphuric acid.....	0.07	10.49	10.56
Chlorine.....	—	1.97	1.97
Silica.....	0.35	117.74	118.29
	30.00	180.00	210.00

In the *Gardener's Monthly* for January, 1862, is a very excellent article on fertilizers, by Novice, (who, by the way, *I think*, exhibits a vast amount of common sense,) and from which I extract an analysis of stable manure :

	lbs.
Stable Manure.....	1,000
Water, parts.....	754
Nitrogenous organic matter.....	37
Potash.....	4.6
Soda.....	0.5
Lime.....	3.1
Magnesia.....	0.5
Oxide of iron and alumina.....	—
Phosphoric acid.....	2.63
Sulphuric acid.....	0.5
Chlorine.....	0.22
Silica.....	16.75
Insoluble matter and water.....	179.80
	1,000.00

Davy says the saline compounds found in soils are common salt, sulphate of magnesia, sometimes sulphate of iron, nitrates of lime and of magnesia, sulphate of potassa, and carbonates of potassa and soda—and that the earthy matters are the true basis of the soil; the other parts, naturally or artificially introduced, operate in the same manner as manures. Four earths generally abound in soils, the aluminous, the siliceous, the calcareous and the magnesian. One of the most fertile soils in Sweden, in Europe, analyzed by Bergmann, was found to contain :

Coarse silex.....	30 parts,
Silica.....	56
Alumina.....	14

Another analysis, by Giobert, of soil from the environs of Turin, gave :

Silica.....	77 to 79 parts,
Alumina.....	9 to 14
Carbonate of Lime.....	5 to 12

and an excellent wheat soil in the neighborhood of West Drayton, in the county of Middlesex, England, yielded to Davy, three-fifths of siliceous sand, and two-fifths of three different earths, in the following proportions :

Carbonate of Lime.....	28 parts,
Silica.....	32
Alumina.....	39
Carbonate of lime.....	30

100

The moisture and animal or vegetable matter are not taken into account in the analysis of the soils just mentioned.

From this it appears that three earths which constitute the basis of fertile soils enter into the composition of plants. Chaptal, whom we quote, says this has been shown by Bergmann in analyzing different kinds of grain, and the experiments of Ruchert upon different vegetable products placed it beyond a doubt. About one hundred parts of ashes well leached, and consequently deprived of nearly all their salts, gave to him.

	Silica.	Lime.	Alumina.
The ashes of Wheat.....	48	37	15
Oats.....	68	28	6
Barley.....	69	17	15
Rye.....	63	21	16
Potatoes.....	4	66	30
Red Clover.....	39	33	30

All soils do not contain these three earths. There are some which consist of a combination of only two, as for instance,—silica with alumina, or, alumina with carbonate of lime; other substances also enter into the composition of soil besides those I have just mentioned; but I think enough is here stated to show the value of a correct analysis of the different kinds of soil upon which crops are to be raised. Every farmer ought to know something of the quality of the soil he cultivates, and understand when deficient in any of the elements which constitute a good soil, and what kind of manure to apply to remedy the defect. As the soil derives its fertility from manure, every farmer should make it his special study how to procure it and use it judiciously. The time is not far distant, if it is not already at hand, when farmers will cultivate less land, but what they do cultivate will be done in the most thorough manner.—*Prairie Farmer.*

GALLIZING WINES.

At the late meeting of the Illinois State Grape Growing and Wine Making Association, there was considerable discussion upon this subject.

Mr. Worthen, of Warsaw, related his experience in wine making. He said that the association should exert an important influence upon the manufacture of wine. If we are not in a country that will make good wine, we should quit raising grapes, and give our attention to other matters. Hundreds of thousands of gallons of wine are made in St. Clair county, by persons who never raised a ton of grapes.

Dr. Studer was in favor of making wine out of the pure juice when we have grapes that can be converted into wine, and not degenerate into vinegar. He mentioned several instances where wine had turned to vinegar for want of saccharine principle. Care must be taken to put together the right portions of sugar and water.

Mr. Husman spoke on the subject of gallizing. The pure juice is water and sugar—is it any less pure when added from other sources? Some grapes will make good wine without gallizing. Good wine should be palatable and agree with the human constitution. If you drink wine and find your head clear the next morning, you may be sure it was good wine. Champagne is a manufactured wine and yet no one calls it adulterated. Prince Metternich opposed gallizing. A quantity was made from the husks of the grapes and gallized. The Prince was invited to drink of the different brands, and he chose this in preference to others, but when informed how it was made, ordered it to be poured out, for, as he said, he would have no artificial wine in his cellars. Mr. Husman said he never had any trouble in selling his gallized wine, but he sometimes did in disposing of his pure wine.

E. G. Johnson questioned the speaker to some extent, in relation to the relative value of pure and gallized wines. He was opposed to giving the world the impression that the association indorses all manufactured wine.

Mr. Worthen wished to know how many people in any community in this country were able to judge the purity of wine.

Mr. Kruse wanted to know how 'he gallized wine would keep in a cellar.

Mr. Husman said it kept well since 1865 on a shelf in a drug store. It will keep as well, if not better than pure juice, Catawba, Concord, Herbemont; some seasons Norton's Virginia require gallizing to some extent. Delaware, Maxatawny, Rulonday, Louisiana, do not require it.

Mr. Hake, of Adams county, inquired whether it was intended that those who brought pure wine were to compete with those who brought gallized wine.

Mr. Littleton offered the following resolution:

“Resolved, That when in consequence of an unfavorable season there is too much acid in the grape and too little sugar to make a good and palatable wine, it is recommended to supply the deficiency of the one and neutralize the other by the process called gallizing.”

Mr. Ira Smith said Dr. Gall states that in a nominal wine, there is one thousand parts water to one hundred and forty parts of sugar and six parts of tartaric acid.

Mr. Hake wished to make himself understood: he wanted to know if in an association of this kind, where premiums are offered, whether the pure wine was to compete with the gallicised wine. His idea was that if men do gallize wine, let them, but don't suffer it to come in competition with the pure wine. Let other premiums be offered for gallized wine. It is sometimes necessary that wine should be gallized; but as for him, if he could not send wine to market without the addition of rainwater and sugar, he would quit the business.

The Chair had doubts of Dr. Gall's theory, and would like some person to throw some light upon it.

Mr. Johnson offered the following as an amendment to the original resolution:

“Resolved, That the Association regard no wine as entitled to the indorsement of this Society as genuine wine, unless made of pure grape juice, leaving it to wine makers and dealers to manufacture according to their particular taste and fancy, by the addition of other ingredients or otherwise.”

From no report that we have seen can we learn that the resolution, either as originally proposed or as amended, was passed by the Convention. So we are forced to consider the Association as non-committal on the subject of gallizing.

ART. XII—DEPARTMENT OF COMMERCE.

NATIONAL AND STATE DEBTS—STATISTICS AND OBSERVATIONS.

We present, in the following table, a synopsis of the debts of the several States of the American Union, as they stood at or near the close of 1868, and at the

commencement of 1869, together with the population of these respective States, as we find it in the *New York Independent* :

NEW ENGLAND STATES.

	Population.	Debt.
Maine.....	665,000	\$5,053,500 00
New Hampshire.....	340,000	3,456,800 00
Vermont.....	320,000	1,227,000 00
Massachusetts.....	1,350,000	26,835,490 00
Rhode Island.....	200,000	3,088,500 00
Connecticut.....	525,000	6,674,992 00
	3,400,000	\$46,336,882 00

MIDDLE STATES.

	Population.	Debt.
New York.....	4,400,000	\$41,956,786 40
New Jersey.....	900,000	3,198,100 00
Pennsylvania.....	3,500,000	33,300,035 65
Delaware.....	135,000
Maryland.....	800,000	8,654,802 00
West Virginia.....	400,000
	10,135,000	\$90,119,721 71

WESTERN STATES.

	Population.	Debt.
Ohio.....	2,660,000	\$10,532,675 43
Michigan.....	1,000,000	5,615,519 12
Indiana.....	1,700,000	7,195,085 94
Illinois.....	2,450,000	5,975,103 30
Wisconsin.....	1,100,000	2,252,157 00
Minnesota.....	400,000	303,003 00
Iowa.....	1,000,000	300,000 00
Nebraska.....	150,000	72,771 00
Kansas.....	300,000	1,095,175 00
Missouri.....	1,400,000	16,082,000 00
	12,350,000	\$48,452,386 82

SOUTHERN STATES.

	Population.	Debt.
Virginia.....	1,300,000	\$42,215,013 03
North Carolina.....	1,050,000	19,219,945 00
South Carolina.....	700,000	5,407,306 27
Georgia.....	1,100,000	5,872,000 00
Florida.....	150,000
Alabama.....	280,000	4,375,100 00
Mississippi.....	800,000	7,000,000 00
Louisiana.....	730,000	13,080,748 00
Texas.....	750,000
Kentucky.....	1,250,000	3,619,191 46
Tennessee.....	1,050,000	34,540,807 00
Arkansas.....	500,000	3,483,179 10
	10,360,000	\$138,803,300 86

PACIFIC STATES.

	Population.	Debt.
California.....	600,000	\$4,696,500 00
Nevada.....	100,000
Oregon.....	80,000	176,156 50
	780,000	\$4,872,656 50

AGGREGATE.

	Population.	Debt.
New England States.....	3,400,000	\$46,336,882 00
Middle States.....	10,135,000	90,119,721 71
Western States.....	12,350,000	48,452,386 82
Southern States.....	10,360,000	138,803,300 86
Pacific States.....	780,000	4,872,656 59
	37,025,000	\$329,584,446 03

The debt of the New England States, it will be seen, is \$13 62 and a fraction per capita; of the Middle States, \$8 90 and a fraction; of the Western States, \$4 and a fraction; of the Southern States, \$13 39 and a fraction; and of the Pacific States, \$6 24 and a fraction. The New England States owe the largest amount in proportion to the population, and the Western States the smallest. The large State debts are those of New York, Pennsylvania, Virginia, Massachusetts, North Carolina, Missouri, Tennessee, Louisiana and Ohio—making an aggregate of \$240,567,499 as the debt of these nine States. The average of the total debt of all the States is \$8 90 and a fraction per capita.

The National debt on the 1st of June, 1869, was \$2,505,412,613, which is at the rate of \$67 68 per capita, for the whole United States. Pay the National debt in gold, at the average price of 140, and it adds over one thousand millions to the debt, making it three thousand five hundred and seven millions five hundred and seventy-seven thousand six hundred and fifty eight dollars (\$3,507,577,658).

Who, in his wildest dream, ever fancied that an over taxed people would submit to this injustice? These bonds were bought with greenbacks, when they were worth much less than now. They were contracted to be paid in greenbacks, and in greenbacks they will be paid, or not paid at all.

FOREIGN COMMERCE.

Imports of Foreign Merchandise for past two years.

ARTICLES.	1868-9.	1867-8.
Coffee—Cuba, etc, bags.....	1,367	437
Coffee—Rio, bags.....	109,841	107,660
Sugar—Cuba, boxes and barrels.....	93,120	78,115
" " hhd's.....	9,589	9,297
" Brazil, boxes and bags.....	262
Molasses—Cuba, hhd's.....	10,368	21,989
" " etc, bbl's.....	3,043	8,218
Salt—Liverpool, sacks.....	353,580	293,394
Salt—Turks Island, etc, bushels.....	74,190	4,855

Value of merchandise imported into New Orleans from foreign countries during the fiscal year ending June 30, 1869.

Great Britain.....	\$4,295,575 00	Italy.....	160,494 00
Cuba.....	3,412,419 00	West Indies.....	111,445 00
Brazil.....	1,004,435 00	Spain.....	64,061 00
France.....	1,115,890 00	Portuguese Possessions.....	27,884 00
Mexico.....	330,371 00	Central American States.....	3,995 00
German States.....	288,462 00	Canada.....	639 00
Total.....			\$11,415,660 00

Duties Collected at the port of New Orleans during the fiscal years ending June 30, 1867-8 and 1868-9.

MONTHS.	1867.	1868.	MONTHS.	1868.	1869.
July.....	\$267,469 44	\$236,269 68	January.....	\$289,096 25	\$435,685 28
August.....	308,030 66	222,864 90	February.....	456,819 34	404,308 99
September.....	225,457 10	306,690 12	March.....	521,703 46	559,316 82
October.....	367,291 93	399,007 68	April.....	494,326 46	450,553 22
November.....	405,112 84	401,474 06	May.....	323,213 52	260,367 99
December.....	312,530 65	309,845 65	June.....	308,760 95	293,000 75
Total.....				\$4,278,722 60	\$4,263,385 14

Value of Domestic Products exported to foreign countries from New Orleans during the fiscal year ending June 30, 1869.

Great Britain.....	\$40,002,121	Italy.....	\$ 1,275,654
France.....	15,940,066	Mexico.....	452,564
German States.....	7,158,582	Brazil.....	366,484
Spain.....	3,467,310	West Indies.....	255,354
Russia.....	1,838,323	Canada.....	13,392
Cuba.....	1,327,030	Other Countries.....	3,032,052
Total.....			\$75,128,932

DEPARTMENT OF COMMERCE.

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Value of Foreign Commodities re-exported from New Orleans during the fiscal year ending June 30, 1869.

England.....	\$391,402 00	West Indies.....	\$ 22,225 00
Mexico.....	237,852 00	Italy.....	6,115 00
Cuba.....	68,079 00	Costa Rica.....	157 00
France.....	40,415 00	Bremen.....	31 00
Total.....			\$757,258 00

Statement of the number of vessels entered and cleared at this port, with their aggregate tonnage and crews, for the year ending June 30, 1869.

	No.	Tonnage.	Men.
United States Vessels entered.....	243	156,932.70	4,381
Mexico.....	267	188,821.01	4,922
Foreign Vessels entered.....	454	235,405.84	7,624
Foreign Vessels cleared.....	442	222,608.53	7,343
Coastwise Vessels entered.....	970	769,023.21	23,770
Coastwise Vessels cleared.....	1,259	1,019,873.20	31,237
Total.....	3,635	2,582,764.49	79,277

Statement of Monthly Collections and Deposits on Account of Internal Revenue in the First Collection District of Louisiana, for the fiscal year ending June 30, 1869.

MONTHS.	1868.	MONTHS.	1869.
July.....	\$103,098 07	January.....	\$ 136,964 98
August.....	123,305 34	February.....	136,676 32
September.....	55,189 56	March.....	171,792 55
October.....	65,248 54	April.....	195,580 32
November.....	60,726 25	May.....	374,806 67
December.....	94,767 63	June.....	226,392 10
Total.....			\$1,744,448 13

COMMERCE COASTWISE.

We subjoin an extract from a letter from Hon. Francis A. Walker, Acting Special Commissioner of the Revenue, upon this subject, addressed to the editor in reply to an inquiry in regard to the statistics of our Atlantic and Gulf port trade :

BUREAU OF STATISTICS,
TREASURY DEPARTMENT, U. S. A.,
Washington, D C., September 1st, 1869.

Dear Sir—I am glad to hear from you in respect to the coastwise trade. I think it of very great importance that the country should be furnished with statistics of the movement of merchandise along our coast and over our lakes and rivers. Unfortunately the law is in the way. Vessels having on board not more than a certain amount of foreign merchandise are allowed to depart from, and arrive at, ports within the same "great collection district," without filing a manifest of cargo, or taking out a clearance, except upon the Northeastern, Northern, and Northwestern frontier. In consequence, all returns of entrances and clearances in the coasting trade are vitiated to a great extent, and it becomes impossible to secure any statement of freight moved.

I am very much in hopes Congress will take the matter up soon, and pass such a law as will enable us to collect this kind of information. I have spoken with many prominent members, and when before the Census Committee represented to them as strongly as I was able the importance of this subject.

My idea is that, without exacting elaborate and extended returns, the owners or masters of vessels should be required to furnish a statement of the principal articles transported by them, indicating the two ports between which the transaction takes place. It would not, perhaps, be necessary to go more into detail than to give the tons of coal, thousand feet of lumber, barrels of flour, bushels of grain, number of cattle, and number of tons of general merchandise or other freight transported.

Aside from this, I am now in correspondence with the National Board of Trade, and hope soon to inaugurate a system of reports exhibiting the interior trade of the country so far as it can be gathered at the principal ports and commercial cities. If I succeed in this, the object gained will be of very great value to the commercial community, to the press, and to the legislation of the country.

We hope these views will be embodied in the annual report of the Secretary of the Treasury, and ask the attention of members of Congress from the South to the importance of legislation on the subject.

COTTON CROP OF 1868-9.

The New York *Commercial and Financial Chronicle* sums up the total crop of 1868-9, as follows:

	1869.	1868.
Receipts at the shipping ports, bales	2,100,428	2,240,282
Shipments from Tennessee, etc., direct to manufacturers.	258,611	271,711
Total	2,359,039	2,511,993
Manufactured South, not included in above	80,000	82,000
Total cotton crop for the year, bales	2,439,039	2,593,998

CONSUMPTION.

The consumption the past year shows a slight falling off, notwithstanding the mills have increased their stock about 30,000 bales. Our usual summary, showing the result for the year, North and South, is as follows:

Total crop of the United States as above stated	2,439,039
Stock on hand (September 1 1868)	38,130

Total supply during year ending September 1, 1869	2,477,169
Exported to foreign ports	1,448,020
Sent to Canada by railroad	18,000
Consumption in Northern States	918,806
Consumption in Southern States	80,000
	2,464,826

Now on hand (September 1, 1869)	12,343
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We have been at considerable trouble to obtain a correct idea of the stock now held by the mills, and find that, although several of the largest corporations are holding six, seven or eight weeks' supply, the great body of the spinners are lightly stocked. The total held by them, on the 1st of September, was about 60,000 bales, against 30,000 bales last year. Taking the stock, then, on the 1st of September at these figures, we see that the actual consumption of all the mills, after deducting the increase held this year over last year (30,000 bales) would be about 968,000 bales, against 982,000 last year, leaving for the Northern mills about 888,000 bales against 900,000 bales last year.

The new year begins with a deficiency in the visible supply of cotton for this country and Europe to the extent of 330,000 bales compared with the amount on hand at the same period of last year. Hence to permit of the same consumption the coming season as during the season which has just closed, the cotton production of the world must be increased to that extent. But this year the average weekly consumption of Great Britain has been about 3,000 bales less than during the same period of 1867-68, while the Continent and the United States have probably together also consumed about 3,000 bales less per week. If, therefore, the mills this season return to the consumption of 1867-68, 300,000 bales additional will be needed, or in all an increased production of 630,000 bales without allowing any accumulation of stock.

THE ANNUAL STATEMENT of the trade and commerce of New Orleans for the year 1868-9, published on the 1st of September, shows a gratifying improvement on the business of the preceding year. The total value of produce received from the interior was \$167,559,658 against \$127,459,581 for the year 1867-8, being an increase of \$40,100,000. The value of cotton received was \$98,826,055 against \$68,510,487 the year previous; of Louisiana sugar and molasses \$15,016,000 against \$7,789,000; of Louisiana rice \$999,267 against \$577,745 the year previous. Of unmanufactured tobacco the receipts have been 28,036 hhds. against 15,304 last year. The receipts of flour have been 1,267,921 bbls. against 868,086 last year. Hog products have decreased both in quantity and value as compared with last year although the price has been considerably increased. The receipts of

corn have been 3,465,348 bushels against 4,056,605 bushels last year, but the consumption in the city, and the country supplied from here, has increased 87,000 bushels in the same time.

NEW ORLEANS MARKET.

COTTON.—The movement in our leading staple since the first of the month has been moderate. There has been a fair demand, but at steadily declining prices. On the 1st inst., low middling was quoted 30½@31c., and middling at 32@32½c.; now, (24th September.) Low middling is 25½@26c., and middling 26½@27.; showing a decline of 5c. per pound on low middling, and 5½c. on middling, equal to \$22 to \$25 per bale. The sales since the 1st September have been 15,475 bales.

The following table shows the rates here and in Liverpool 1st September, 24th September, and same time last year :

	Sept. 1.	Sept. 24.	Last Year.
Ordinary.....	— @ —	— @ —	— @ —
Good Ordinary.....	29½@30	— @25	21 @21½
Low Middling.....	30½@31	25½@26	21½@22
Middling.....	32 @32½	26½@—	22½@—
LIVERPOOL QUOTATIONS.			
Middling Uplands.....	—@13 11-16	12½@—	9½@—
Middling Orleans.....	—@13 13-16	12½@—	10½@—

STATEMENT OF COTTON.

Stock on hand 1st September, 1869—bales.....	629
Receipts to 24th September.....	25,304
Exported.....	25,993
On hand and on shipboard 24th September.....	6,033
	19,060

SUGAR AND MOLASSES.—There has been a fair demand for La. Sugar, but the supply in first hands is exceedingly light, while the receipts continue restricted. Operations have been mostly confined to the retail trade at 12½ ¢ lb for Common, 12½ for Fair and 13½c. for Fully Fair. Receipts of Louisiana Molasses exhibit an increase, but are principally of an inferior description, and sell at 30@52c. ¢ gallon. Refinery Sugars are getting scarce and prices have slightly advanced. More animation has been noticeable in Cuba Sugar, with increased sales, which were made on the basis of 11½@13c. for refinery in hhds, and 12½@14½ for Centrifugal in boxes.

TOBACCO.—There has been a good enquiry during the month, but generally at prices below the views of factors. The news from the tobacco growing districts is quite unfavorable, both on account of the drought and the backwardness of the crop. The market is very firm at our quotations :

	Light.	Heavy.
Long.....	7½@8½c.	8 @9 c.
Common Leaf.....	8½@9½c.	9½@10½c.
Medium.....	9½@10½c.	10½@11½c.
Good.....	10 @11½c.	11½@12½c.
Fine.....	12 @14 c.	12 @15 c.
Choice Selections.....	14½@15 c.	15 @16 c.
Fine Wrappers.....	@— c.	16 @25 c.

NEW ORLEANS TOBACCO STATEMENT.

Stock on hand September 1, 1869—hhds.....	7,421
Received since.....	605— 8,026
Taken for city consumption, etc.....	60
Exported.....	762— 822

Stock on hand not cleared, September 24th..... 7,204

LOUISIANA RICE.—We have to note a good demand for this article, especially for prime and choice grades, and prices are firm. The receipts since the first have been 4,500 bbls., and sufficient supplies to induce order for shipment will soon be accumulated. We quote 8½@9½c. for fair to choice. Carolina is offering at 10@10½c. The stock of India is light.

COFFEE.—The market is steady and firm. We quote fair to prime at 15@16½c. ¢ lb gold, duty paid. Stock in first hands, 11,400 bags.

SALT.—Demand for Liverpool salt is light. Receipts since 1st inst. 26,700 sacks. Dealers' prices \$2 20@ \$2 30 for coarse, \$2 35@ \$2 45 for Fine. Large lots, when taken by steamboats at warehouse a reduction is made for drayage.

EDITORIAL.

OUR ACKNOWLEDGEMENTS are due to Hon. Mr. Vidal for a copy of the report of the Postmaster General.

To the State Department for the following valuable document: The address delivered by Gen. W. B. Bate, before the Alumni Society of Cumberland University, at Lebanon, Tennessee, June 24th, 1869, from which we design to make extracts.

To Hon. Eugene Casserly, for a copy of his speech on the Fifteenth Amendment.

To the publishing house of A. S. Barnes & Co., for "Songs for Christian Worship," the "Mount Zion Collection," "Sabbath Carols" and the "German Echo."

We have been favored with a call from Col. W. S. Dogan, agent for that excellent and popular periodical, the *XIX Century*. We commend this publication to the Southern people.

HOUSTON CO., GA., Dec., 22, 1868.—Messrs. Zeilin & Co., Macon Ga.—*Gentlemen*—Simmons' Liver Regulator has been used in my family for many years with great success. I regard it an invaluable family medicine, and take pleasure in recommending it to the public.

Very respectfully,

REV. J. RUFUS FELDER.

THE NEW ORLEANS PRESS.—We call attention to our advertisements of the New Orleans newspapers. We cordially commend them to subscribers for their market news, locals, and the generality of their editorials. Taking into consideration the material and workmanship of the *Times*, *Bulletin*, *Bee*, *Picayune* and *Republican*, there are no better daily journals published anywhere than in New Orleans.

PRACTICAL BOTANY.—The exposition of Messrs Ellwanger & Barry's fruit, shrub and flower nursery, at Rochester, New York, is a most perfect illustration of combined beauty and profit. There are colored engravings of the fruits, which makes our mouth water. There are pears, apples and strawberries. There are roses, dahlias and flowering shrubs of every cultivatable variety. This most extensive and complete nursery will send any of the varieties enumerated in the catalogue to any part of the country. Now that fruit culture is assuming such importance in the South, those who may wish the very best selections furnished by a responsible and respectable house, had better read the advertisement of Messrs. Ellwanger & Barry and correspond with them.

E. M. IVENS & Co.—In this era of steam plows, steam saw mills and buggy-cultivators we do not know of any house or assortment which we can more properly commend to our planters than that of E. M. Ivens & Co. In addition Mr. Jones, the superintendent, is so practically familiar with the theory and mechanism of an engine, as to be able to take one apart and put it together himself if necessary. Our planters should examine his portable engines, one at six or nine hundred dollars will save the labor of ten or twelve hands, or of four or five mules. It will be much wiser to send to Ivens for a labor-saving machine than to China after pagans. Planters should adopt all proper means to save labor. The steam slave is the best substitute for manual labor.